Spring 2001

An Analysis of the Changes in the Proportional Distribution of Poverty Between Metropolitan Statistical Areas and Their Central Cities

Billy W. Godair
Old Dominion University

AN ANALYSIS OF THE CHANGES IN THE PROPORTIONAL DISTRIBUTION OF POVERTY BETWEEN METROPOLITAN STATISTICAL AREAS AND THEIR CENTRAL CITIES

by

Billy W. Godair
B.S., 1980, Southern Illinois University
M.B.A., 1986, Golden Gate University
M.U.S., 1998, Old Dominion University

A Dissertation to the Faculty of
Old Dominion University in Partial Fulfillment of the
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

URBAN SERVICES

OLD DOMINION UNIVERSITY

April 2001

Reviewed by:

Bruce Rubin, Interim Dean
College of Business and
Public Administration

Berhanu Mengistu, Ph.D.
Program Director
Graduate Center for Urban Studies
and Public Administration

Approved by:

Berhanu Mengistu, Ph.D. (Director)
Professor of Urban Studies
and Public Administration

Gail Johnson, Ph.D. (Member)
Professor of Urban Studies
and Public Administration

Christopher Colburn, Ph.D. (Member)
Associate Professor
College of Business and
Public Administration

ABSTRACT

This study examined Wilson's hypothesis that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skills requirements for employment provide an explanation for the increasing concentration of metropolitan area poverty in its central city. This study also assesses the influence that racism, represented by racial residential segregation (Index of Dissimilarity), may have on the distribution of metropolitan poverty (Massey 1990, 1994; Massey, Gross and Shibuya, 1994; Feagin, 1999, Orfield, 1992). Additionally, this study will expand Wilson's hypothesis by examining the influence that these variables (economic infrastructure, skills mismatch, and racial residential segregation) have on central city income inequality and median household income, a relationship suggested by several authors (Blank and Card, 1993;Cloutier, 1997; Caputo, 1995).

This study fails to find that the proportion of metropolitan area poverty has increased in its central city contrary to Wilson's (1987) argument that the consequence of economic restructuring and the suburbanization of employment opportunities coupled with rising skills requirements for employment have been the concentration of metropolitan area poverty in their central city. Analysis of the 1970 and 1990 distribution of metropolitan area poverty revealed that the proportion of metropolitan area poverty residing in its central city has remain virtually unchanged over the last 20 years despite significant changes occurring in the distribution of economic infrastructure, skilled labor force, and in the Index of Dissimilarity. Analysis concludes that variation in the distribution of metropolitan area poverty is strongly influenced by variations in the distribution of variables that Wilson suggests provide an explanation for the increasing concentration of

metropolitan area poverty in its central city. It also finds evidence, contrary to Wilson's argument, that racism manifested as racial residential segregation and measured as the Index of Dissimilarity between the metropolitan area and its central city, does significantly influence the distribution of poverty between the metropolitan area and its central city. Additionally, changes in metropolitan distribution of these variables coupled with change in the Index of Dissimilarity between the metropolitan area and its central city does significantly explain changes in the proportional distribution of metropolitan area poverty.

This study did not find evidence to support the suggestion (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995) that these same variables influenced central city income inequality. It did find evidence that a limited relationship may exist between these variables and central city median household income.

For Charlene, William, and Shaun

This work is dedicated to my wife, Charlene, and our sons, William and Shaun, whose patience, support and love sustained the effort to complete this study.

ACKOWLEDGEMENT

I wish to thank Dr. Mengistu, Dr. Johnson, and Dr. Colburn for their assistance and support during this effort. They have been both my challenge and inspiration.

TABLE OF CONTENTS

Table of Contents, Continued

Table of Contents, Continued

LIST OF TABLES

LIST OF TABLES, Continued

LIST OF TABLES, Continued

LIST OF TABLES, Continued

LIST OF TABLES, Continued

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Problem Statement

From 1970 to 1980, the number of persons in poverty grew from 26.9 million to 27.4 million, a modest 1.7% growth of persons in poverty (Jargowsky[1], 1997). However, during that same time period, the poverty levels rose by 12 percent in the nation's fifty largest cities and the number of persons living in poverty areas (census tract with poverty rates greater than or equal to 20 Percent) increased by more than 20 percent (Wilson, 1987). These observations, as well as others, suggested that poverty was becoming geographically concentrated in large American cities during the 1970's (Wilson, 1987; Danziger and Gottschalk, 1987; Jargowsky, 1997). The 1980's saw the continuation of this trend resulting in an increase in the concentration of metropolitan area poverty in their central cities (Madden, 1996). Unfortunately, there appears to be no evidence of any reversal of this trend because between 1970 and 1990 the number of individuals and families who reside in high poverty neighborhoods (neighborhoods with a poverty rate $\geq$40%) nearly doubled from 1.9 million to 3.7 million (Jargowsky, 1997).

William J. Wilson, whose work focused on Chicago's poor black neighborhoods, argues that the concentration of metropolitan area poverty in the central city is the result of the economic restructuring and the suburbanization of employment (Wilson, 1987, 1996). He observed that

> [U]rban minorities have been particularly vulnerable to structural economic changes, such as the shift from good-producing to service-producing industries, the increasing polarization of the labor market into high-wage and low-wage sectors, technological innovations, and the relocation of manufacturing industries out of the central cities. (Wilson, 1987:39)

His observation has two implications. The first implication is that the concentration of metropolitan area poverty in the central city is the result of two profound structural changes that occurred in the economy. The first change is the shift from the production of goods, which is generally characterized by the loss in manufacturing jobs, toward service-oriented production. The second change concerns the changing location of employment opportunities across regions, metropolitan-nonmetropolitan areas, and between cities and their suburbs. These two changes primarily affect the MSA and its central city by creating changes in the occupational and industrial structure and in the spatial distribution of employment opportunities between the MSA and its central city, which may explain why metropolitan area poverty has become increasingly concentrated within the central city.

The second implication is a result of changes in production technology and the functional transformation of cities from producing goods to processing information increased demand for high-skilled workers and a reduced demand for less-skilled workers. As a result, the educational level/skills required for employment rose more quickly than the educational level/skills of the workforce. Thus, the labor supply (workers) was unable to adjust to meet the new employment demands of the labor market. This disconnect between the skills required for employment in the central city

and the skills possessed by the central city labor force may provide another reason as to why metropolitan area poverty has become increasingly concentrated in its central city

Evidence of the increasing concentration of metropolitan area poverty in its central city is demonstrated by the growth in the number of high-poverty neighborhoods in the metropolitan area's central city observed Wilson (1987, 1996) and Jargowsky (1997). However, Madden (1996) documented the increasing concentration of metropolitan area poverty in the central city by illustrating that the ratio of central city poverty rates to MSA poverty rates increased between 1969 and 1979, and 1979 and 1989. Yet, the principal factor(s) behind the increasing concentration of metropolitan area poverty in its central city is still a matter of debate.

Wilson (1987, 1996) argues that the economic restructuring of the U.S. economy is more responsible for the increasing concentration of metropolitan area poverty in its central city than racism. Others argue (Massey 1990, 1994; Massey, Gross, and Shibuya, 1994; Feagin, 1999; Orfield, 1992) that racism represented by racial residential segregation is responsible for geographically concentrated poverty. Though racial residential segregation is arguably not a labor market characteristic, it is a structural factor that varies across labor markets that may modify individual labor market outcomes. Even Wilson (1987: 12) recognized that "a racial division of labor has been created due to decades, even centuries of discrimination and prejudice." Thus, the level of racial residential segregation that exists between the metropolitan area and its central city may contribute to geographic concentration of poverty within its central city.

These same variables (economic restructuring, skills mismatch, and racial residential segregation) may also have a significant effect on income inequality and median

household income experienced in metropolitan area central cities. Blank and Card (1993) demonstrated that labor market conditions greatly influenced median family income and poverty level. Labor market conditions reflect changes in the industrial and occupational mix, and a widening educational distribution which Cloutier (1997) found to be major factors contributing to rising income inequality. And unfortunately, race continues to play a significant role in family income, income inequality, and poverty (Caputo, 1995).

Study Purpose

The purpose of this study is to examine Wilson's hypothesis that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skilled requirements for employment provide an explanation for the increasing concentration of metropolitan area poverty in its central city. For the purpose of this study, the concentration of metropolitan area poverty in its central city will be operationalized as the proportion of metropolitan area poverty located in its central city rather than the number of high poverty neighborhoods in the metropolitan area central city (Wilson 1987, 1996; Jargowsky, 1997) or the ratio of central city poverty rates to MSA poverty rates (Madden, 1996). Additionally, this study will examine Wilson's argument that the economic restructuring of the U.S. economy is more responsible for the increasing concentration of metropolitan area poverty in its central city than racism. This study will also expand Wilson's hypothesis by examining the influence that these variables have on central city income inequality and median household income.

Wilson's hypothesis will be examined by determining whether the proportional distribution of economic infrastructure, skilled labor force, and the level of racial

residential segregation (as measured by the Index of Dissimilarity) between the MSA and its central city influenced the proportion of metropolitan area poverty located in its central city. Previous research focused on quantitative changes or percentage decline in employment opportunities rather than proportional distribution of employment opportunities between the MSA and its central city and assessed residential segregation by the extent blacks and whites are evenly distributed between blocks within a city rather that by the extent that blacks and whites are evenly distributed between the MSA and its central city.

The objectives of this study will be accomplished by examining whether the proportional distribution of economic infrastructure variables, skills mismatch variables, and the level of racial residential segregation (as measured by the Index of Dissimilarity) between the MSA and its central city influences the proportion of metropolitan area poverty located in its central city. The influence of these variables on central city income inequality and median household income will also be assessed. The research objectives are:

1. To analyze whether the 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) influences the proportion of metropolitan area poverty located in its central city.
2. To analyze whether the 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) influences central city income inequality.

3. To analyze whether the 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) influences central city median household income.
4. To analyze whether the proportion of metropolitan area poverty located in its central city is influenced differently by 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.
5. To analyze whether changes between 1970 and 1990 in the proportional distribution of economic infrastructure, skilled labor force and in the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city influences change in the proportion of metropolitan area poverty located in its central city.
6. To analyze whether the change between 1970 and 1990 in the proportional distribution of economic infrastructure, skilled labor force and in the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city influences change in central city income inequality.
7. To analyze whether the changes between 1970 and 1990 in the proportional distribution of economic infrastructure, skilled labor force and in the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city influences change in central city median household income.

8. To analyze whether changes between 1970 and 1990 in the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation's (Index of Dissimilarity) influence over the proportion of metropolitan area poverty located in its central city differs between concentric and non-concentric central city.
9. To analyze whether the proportion of metropolitan area poverty located in its central city has changed between 1970 and 1990.

Study Significance

The reasons for concentrated poverty in the central city are still a matter for debate. Wilson's hypothesis suggests that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skilled requirements for employment provide an explanation for the increasing concentration of metropolitan area poverty in its central city. Massey (1990, 1994) and others (Massey, Gross, and Shibuya, 1994; Feagin, 1999; Orfield, 1992) suggest that racism represented by racial residential segregation is responsible for geographically concentrated poverty. As these variables are hypothesized to influence geographically concentrated poverty, they may also influence central city income inequality and median household income (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995).

Whether the reasons for concentrated poverty in the MSA central cities lies in the loss of central cities' industrial employment or residential segregation, individuals and families who reside in poverty are denied the opportunity for economic growth and social advancement. Additionally, the blight of poverty places a significant economic burden on

local, state, and federal government. As long as poverty exists, efforts must be undertaken to increase our understanding of the causes and effects of poverty. This study seeks to increase our understanding of why metropolitan area poverty is concentrated within its central city by examining how the proportional distribution of economic infrastructure, skilled labor force, and level of racial residential segregation influences the proportion of metropolitan area poverty located in its central city, as well as their influence on central city income inequality and median household income.

Study Methodology

The objective of this study is to assess if the proportional distribution of economic infrastructure, a skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) influences the proportion of metropolitan area poverty located in its central city. The objective of this study will be accomplished by examining the 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and level of racial residential segregation (Index of Dissimilarity) between selected MSAs and their central cities.

The 1970 and 1990 central city proportion of MSA poverty will be regressed against the 1970 and 1990 proportion of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) to assess whether the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) influences the proportion of metropolitan area poverty located in the central city. Conceptually, the proportion of MSA poverty residing in its central city is a function of the proportion of MSA economic

infrastructure, MSA skilled labor force residing in the central city and the level of racial residential segregation that exists between the MSA and its central city. Ordinary least square regression will be used to determine whether the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) influenced the proportion of metropolitan area poverty located in its central city. Quantitative analysis will provide basic descriptive statistics. Additional analysis, using the same hypothesis relationship, will examine if this influence extends to central city income inequality and median household income.

Study Limitations

Data for this study was obtained from the State of the Nation's Cities Database 2.2a (developed and maintained by the Center for Urban and Policy Research at Rutgers University), the *Historical Census Projects, Department of History, University of Minnesota,* Integrated Public Use Microdata Series: Version 2.0 (IPUMS), and the State of the City Data System (developed and maintained by HUD USER – Policy Development and Research's Information Services). These data sets are compiled from U.S. Bureau of the Census, U.S. Department of Labor Statistics, and other official sources to provide information on specific social and economic conditions in a more user friendly format. The integration of these data sets provides a description of the social and economic conditions of American urban centers since 1970.

The sixty cities and their surrounding metropolitan areas used in this study may or may not be representative of other metropolitan areas. Though the concept of Metropolitan Statistical Areas has essentially remained constant through the years, there

are comparability issues that may affect this study. Definition of metropolitan area industrial sectors will be based on the State of the Nation's Cities Database classifications instead of Standard Industrial Classification codes. Analysis of industrial sectors and other variables will be between the MSA and its central city at the metropolitan level; analysis at the census tract or neighborhood levels will not be accomplished. Additionally, the availability of public transportation or other transportation issues will not be addressed, nor will the migration of industrial sector employment or the migration of individuals or families to other regions of the country or different nations be addressed.

Study Organization

The study is organized as follows:

Chapter one outlines the proposed study, including the purpose, significance, methodology, and limitations of the research.

Chapter two will review the literature on deleterious consequences of concentrated poverty, as well as the influence of economic restructuring, skills mismatch, and racial segregation on poverty. The review will focus on identifying and exploring the linkage that exists between these hypotheses and how they may affect the distribution of metropolitan area poverty between the MSA and its central city poverty. Previous models used to assess the influence of economic restructuring, skills mismatch, and racial residential segregation (Index of Dissimilarity) on the causes and concentration of poverty will be discussed to provide the theoretical foundation for the development of the mathematical model used in this study.

Chapter three will develop a model to examine the influence that the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity (racial residential segregation) may have on the proportion of metropolitan area poverty located in its central city. Additionally, chapter three will pose the research question(s) as testable hypotheses. Included in this discussion will be the operational definitions, the organization and analysis of data, and a description of the format in which the results will be presented.

Chapter four will present the research findings and Chapter five will discuss conclusions, policy implications, and suggestions for future research.

NOTES:

[1] Reference Table 2.3, Concentration of Poverty and Underlying Population Dynamics, 1970 – 1990, Page 41 in Jargowsky, Paul A. 1997. *Poverty and Place: Ghettos, Barrios, and the American City.* Russal Sage Foundation. New York.

CHAPTER 2

LITERATURE REVIEW

Overview

Even with a booming national economy, 170 central cities are facing poverty rates of 20 percent or more, population decline, and slow job growth (HUD, 1999). Clearly, the historical view of American cities as catalysts for economic growth and social advancement is under attack as cities seem unable to create avenues of advancement and to keep its population in contact with a metropolitan economy that is decentralizing (Peterson and Vroman, 1992). Although considerable research has been conducted on the causes of concentrated poverty, substantial debate continues. W.J. Wilson (1987, 1996) and Teitz and Chapple (1998) assigned the greatest weight to economic restructuring and the resulting skills disconnect while others argued that the concentrated poverty is a result of racial residential segregation (Massey, 1994; Massey, Gross and Shibuya, 1994; Massey and Denton, 1993; Massey and Eggers, 1991).

Structural Determinants of the Concentration of Poverty in an MSA's Central City

Though several explanations have been proposed to explain the reasons for concentrated poverty within the central cities, the causes for concentrated poverty within the central city and the distribution of poverty between the MSA and its central city remains a matter for debate. Wilson's hypothesis that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skills requirements for employment provides an explanation for the increasing

concentration of metropolitan area poverty in its central city. He argues that the economic restructuring of the U.S. economy is more responsible for the increasing concentration of metropolitan area poverty in its central city than racism.

Economic Restructuring

Economic restructuring is described as the " . . . social changes that are transforming what is produced, how it is produced, and where it is produced (Kephart, 1991:15)." This definition of economic restructuring emphasized two processes. First is the profound structural change that is occurring in the economy as it shifts from the production of goods requiring unskilled workers towards information-processing and service industries requiring skilled workers (Kasarda, 1995, 1989, 1985; Harrison and Bluestone, 1988; Wilson, 1987). This structural change or deindustrialization is generally characterized by the loss in manufacturing jobs and an increase in service jobs (Gottschalk and Joyce, 1996). The second process concerns the changing location of employment opportunities across regions, metropolitan-nonmetropolitan areas, and between cities and their suburbs (Kasarda, 1995, 1989, 1985; Wilson, 1987; Sassen, 1990). These two processes primarily affect the MSA and its central city by creating changes in the occupational and industrial structure and in the spatial distribution of employment opportunity between the MSA and its central city. As a result of these changes, it is hypothesized that the distribution of the MSA economic infrastructure between an MSA and its central city has affected the distribution of poverty and has resulted in poverty becoming increasingly concentrated within the central city.

The most striking evidence that a sectoral shift is occurring is deindustrialization. A decline in the manufacturing sector and an expansion in the service sector characterizes deindustrialization (Gottschalk and Joyce, 1996). Evidence that deindustrialization has occurred in the United States is the metamorphosis experienced by New York City and Boston. In the mid-50's, the more traditional urban industries' employment outnumbered information-processing employment by a 3-to-1 margin in these cities, but by 1980 information-processing employment outnumbered employment in the traditional urban industries (Kasarda, 1989, 1995). The continual transformation of central city employment from traditional urban industries to information-processing is documented in Table 2.1.

Further evidence of deindustrialization is found in that from 1973 to 1986 manufacturers of durable and non-durable goods eliminated over 1.7 million jobs while employment in all other sectors of the economy increased (Harrison and Bluestone, 1988). New York, Philadelphia, Boston, Baltimore, and St. Louis lost over half of their manufacturing jobs between 1970 and 1990 while experiencing substantial employment growth in their information processing industries. Conversely, the cities of the South and West (Atlanta, Dallas, Denver, and San Francisco) achieved both absolute and proportional gains in their information-processing industries when compared to their other industries. Clearly, American cities have transformed ". . . from centers of the production and distribution of goods to centers of administration, finance, and information exchange" (Kasarda, 1989: 28).

Table 2.1 Central-City Employment By Percentage of Employees in Information-Processing Industries: 1970 - 1990

Central City/Sector	1970 (000)	1970 %	1980 (000)	1980 %	1990 (000)	1990 %	Changes 1970 - 1990 (000)	Changes 1970 - 1990 %
New York								
Information Processing Industries	946	28	1107	38	1440	46	494	+59
All Other Industries	2404	72	1795	62	1696	54	-708	-29
Philadelphia								
Information Processing Industries	208	27	240	38	275	45	+67	+32
All Other Industries	564	73	392	62	337	55	-227	-40
Boston								
Information Processing Industries	189	41	204	46	284	56	+95	+51
All Other Industries	276	59	237	54	226	44	-50	-18
Baltimore								
Information Processing Industries	95	26	103	33	141	45	+46	+49
All Other Industries	272	74	205	67	170	55	-102	-38
St. Louis								
Information Processing Industries	92	24	76	26	91	35	-1	-1
All Other Industries	284	76	211	74	166	65	-114	-41
Atlanta								
Information Processing Industries	92	25	108	28	185	34	+93	+101
All Other Industries	280	75	284	72	351	66	+71	+25
Dallas								
Information Processing Industries	111	19	192	22	346	31	+234	+211
All Other Industries	475	81	664	78	768	69	+293	+62
Denver								
Information Processing Industries	70	28	95	28	123	37	+53	+76
All Other Industries	183	72	243	72	209	63	+26	+15
San Francisco								
Information Processing Industries	149	37	180	37	226	43	+77	+51
All Other Industries	253	63	311	63	294	57	+41	+16

Source: Kasarda, John D. 1995. "Industrial Restructuring and the Changing Location of Jobs." In *State of the Union: American in the 1990s, Volume One: Economic Trends.* Table 5.10, pp 244 – 245

Table 2.1 also illustrates the second process of industrial restructuring which concerns the changing location of employment opportunities across regions, metropolitan-nonmetropolitan areas and between cities and their suburbs. The substantial growth in information processing industries and other industries of the South and West when compared to their Northern counterparts illustrates the changing location of employment opportunities across regions. The cities of the South and West added jobs across the employment spectrum thus contributing to their employment growth while their Northern counterparts experienced employment loss because the growth in information industries did not offset the loss of jobs in the more traditional industrial sectors (Kasarda, 1995). While regional redistribution of employment opportunities is significant, the redistribution of employment opportunities between the city and its suburb during the 1970s is even more dramatic.

The impact of the movement of employment opportunities from the cities to their suburbs is illustrated in Table 2.2. The central cities lost a significant number of jobs not only in the blue-collar occupation but also in clerical and sales occupations while their suburbs experienced growth in these occupational sectors. Even though the central city gained jobs in the information industry, those gains were not sufficient to offset the jobs lost in the non-information industry resulting in a net loss of central city jobs. Though metropolitan areas captured nearly 90 percent of the nation's employment growth during the 1980's, this growth primarily occurred in the "edge cities" at the metropolitan periphery resulting in the suburban ring employment exceeding central city employment in virtually all industries by 1990 (Kasarda, 1995).

Table 2.2 Changes in Number of Jobs in Selected Central Cities and Suburban Rings, by Occupational Sector, 1970 - 1980

Metropolitan Area	Managerial And Professional	Technical and Administrative Support	Clerical And Sales	Blue-Collar	Total
Boston					
Central City	26,120	30,300	-40,400	-62,500	-46,480
Suburbs	104,660	75,820	69,460	116,440	366,380
Chicago					
Central City	51,560	68,400	-89,760	-118,860	-88,660
Suburbs	156,200	120,660	115,360	237,900	630,040
Cleveland					
Central City	2,900	14,240	-25,280	-34,580	-42,720
Suburbs	30,140	26,160	19,960	23,800	97,060
Detroit					
Central City	4,700	18,840	-35,540	-89,860	-104,860
Suburbs	51,860	62,500	43,240	29,320	186,920
New York					
Central City	90,460	173,780	-187,820	-171,500	-95,080
Suburbs	200,140	210,800	51,060	27,080	489,080
Philadelphia					
Central City	23,040	35,360	-54,060	-75,200	-70,860
Suburbs	50,280	55,880	36,240	29,500	171,900

Source: Kasarda, John D. 1989. "Urban Industrial Transition and the Underclass." In *The Annals of the American Academy of Political and Social Sciences.* Table 1, p 29, Copyright @ 1989 by Sage Publication, Reprinted by permission by Permission Sage Publications.

Even though the Frostbelt central cities continued to lose industrial sector employment, their service sectors, especially information-processing, exhibited strong growth even though the majority of the growth required employees with education beyond high school (Kasarda, 1995). Just as economic restructuring has radically altered the types, location, and skills required for employment, it has also created a labor market that is divided into a high-wage and a low-wage sector (Harrison and Bluestone, 1988, W.J. Wilson, 1987). The high-wage sector is composed of well paid, white collar professionals (managers, lawyers, accountants, bankers, business consultants, and other

technically trained people) who control and co-ordinate the activities of global corporations and corporate services. The low-wage sector is composed of poorly paid, semiskilled and unskilled workers whose collective function is to provide services to the high-wage sector (Harrison and Bluestone, 1988). Further evidence of economic restructuring and the accompanying wage polarization is provided by the growth in production/goods industries of high-wage and high-skilled jobs in response to the introduction of new technology and management methods while low-wage and low-skilled jobs declined in absolute numbers (Howell and Wolff, 1991). Conversely, the service industries experienced a declining "middle" while undergoing growth in both the high-skilled high-wage jobs and low-skilled low-wage jobs (Howell and Wolf, 1991).

In sum, economic restructuring holds that as employment shifts from production of goods to information-processing and service industries a disproportional number of high wage jobs requiring manual skills were destroyed and replaced by high wage information processing and service jobs requiring knowledge and skills (W.J. Wilson, 1987, 1996, Kasarda, 1985, 1989, 1995). Thus, as the production industry leaves the central city and is replaced by information-processing and service jobs, the employment opportunities for the inhabitants of the central city are lost (W.J. Wilson, 1987, 1996, Kasarda, 1985, 1989, 1995). And though the information-processing and service sectors have created millions of new jobs, these jobs tend to be associated with a polarized earning distribution with educational attainment as the separator from low paying and high paying jobs (Howell and Wolf, 1991; Harrison and Bluestone, 1988; Wilson, 1987). The economic transformation of the central city and the increasing polarization of earning distribution observed Kasarda (1995, 1990) and others (Teitz and Chapple, 1998; Harrison and

Bluestone, 1988; Wilson, 1987) has been accompanied by an increase in central city poverty.

Skills Mismatch

Accompanying the functional transformation of cities from the production of goods to information-processing and services has been an increased demand for high-skilled workers and a reduced demand for less-skilled workers (Kasarda, 1995, 1990; 1989, Gottschalk and Joyce, 1996; Wilson, 1987, 1991). Unfortunately, the educational level/skills required for employment rises more quickly than the educational level/skills of the workforce; thus, the labor supply (workers) was unable to adjust to meet the new employment demands of the labor market (firms) resulting in a disconnect between the skills required for employment and the skills possessed by the labor force (Holzer and Vroman, 1992). The disconnect between the skills required for employment and those available in the labor market have been referred to as Skills Mismatch (Kasarda, 1985, 1989, 1995; Wilson, 1987; Teitz and Chapple, 1998). The result has been an increase in the central city unemployment and poverty rates because central city residents lack the skills required for employment in the new central city labor market (Wilson, 1987, 1996; Kasarda, 1985; 1989, 1995).

Evidence of the increase in educational levels of employed central city workers is provided by examining the educational level of central-city jobholders (regardless of place of residence), Table 2.3. By 1990, over half of central city workers had attended college and half of those held college degrees. Just as striking is the over sixty percent reduction in the percentage of jobs held by those individuals with less than a High School

Diploma. Kasarda (1995) observed that though these changes reflect the overall improvement in the educational attainment of the city labor force since the 1970's, these improvements were not as great as the concurrent upward shift in city jobholders education. Unfortunately, the increase in central city jobs requiring some college or a college degree were filled by suburban commuters, while high school or less than high

Table 2.3 Percentage Distribution of Central-City Jobs, by Educational Level Of Jobholders: 1970 - 1990

Central City	Year	Less Than High School Diploma	High School Diploma	Some College	College Degree
Baltimore	1970	48%	29%	10%	12%
	1980	30	36	16	19
	1990	15	32	26	27
Boston	1970	29	36	17	18
	1980	13	31	22	33
	1990	7	23	26	44
Chicago	1970	38	32	15	15
	1980	23	32	20	25
	1990	14	27	29	31
Cleveland	1970	35	38	13	14
	1980	21	40	19	20
	1990	11	33	30	27
Detroit	1970	37	37	14	12
	1980	21	37	22	20
	1990	11	30	33	26
New York	1970	36	33	13	18
	1980	22	31	19	28
	1990	13	28	24	35
St. Louis	1970	43	33	11	13
	1980	26	37	19	19
	1990	12	29	32	27
Washington D.C	1970	23	32	18	28
	1980	11	27	21	41
	1990	7	21	25	47

Note: Rows may not sum to 100 due to rounding.
Source: Kasarda, John D. 1995. "Industrial Restructuring and the Changing Location of Jobs." In *State of the Union: American in the 1990s, Volume One: Economic Trends.* Table 5.13, pp 251 – 252

school job losses were absorbed by city residents (Kasarda, 1995). Thus, the less-educated city residents fell further behind in the hiring queue, found themselves on the unemployment line, and ultimately fell into poverty.

Though formal education is only one dimension of the skills set that the labor force brings with them to the labor market, there is a high degree of correlation between education and cognitive and interactive skills (Howell and Wolff, 1991). Recent studies (Howell and Wolff, 1991; Lerman and Schmidt, 1999) suggest the increase in demand for greater cognitive and interactive skills in the production of goods is due to changing technology, new management methods, and the outsourcing of low-skill operations, while in the information-processing and service industries the employment shift from low-skill industries to high-skill industries is responsible for increased cognitive and interactive skills. For example, since 1992 to the first half of 1998, of the 11.7 million newly employed adult workers (ages 25 and over), 94 percent had at least some college and over half of them had a BA degree and nearly two-thirds of employment was in professional, managerial, and technical jobs (Lerman and Schmidt, 1999). Thus, using educational attainment as a measure of the labor force skills required by the labor market allows us to assess the existing skills mismatch and assess recent labor market trends.

Clearly, the emergence of advanced services dominated by information and knowledge based industry requiring highly educated individuals has had a detrimental impact on less-educated workers than those with college degrees (Gottschalk and Joyce, 1996). This detrimental impact is evidenced by the growing wage inequality that has grown among education groups (Lerman and Schmidt, 1999; Haveman, 1997) and the very limited opportunities for employment faced by high school dropouts regardless of

race or sex (Lerman and Schmidt, 1999). Unfortunately, there appears to be no reversal of increasing skills demanded by the labor market which prevents unskilled workers from participating in the new high skills growth sector of the central city economy.

Racial Residential Segregation

Though racial residential segregation is arguably not a labor market characteristic, it is a structural factor that varies across labor markets that may modify individual labor market outcomes. Massey (1990) argues that racial residential segregation plays a critical role in concentrating poverty. The source of racial residential segregation may lie in a legacy of white discrimination against minorities which has produced a physical separation of the races, created barriers to employment opportunities, and denied access to a quality education which has isolated minorities from main stream residential communities and institutions (Massey, 1994; Feagin, 1999; Orfield, 1992). Whatever the source of racial residential segregation, a racially segregated U.S. housing market may result in the geographical concentration of poverty (Massey, et al, 1994).

In order to illustrate how racial segregation could produce concentrated poverty in contrast to Wilson's (1987) argument that economic restructuring and the suburbanization of employment opportunities were responsible for concentrated poverty, Massey (1990) constructed four hypothetical cities identical to one another with the exception of the degree of residential segregation imposed on blacks. His hypothetical cities consist of two racial groups evenly distributed throughout the hypothetical cities so that each area had a racial composition of 75% White and 25% Black. Each group would experience the same neighborhood poverty rate of .125 representing the weighted average of the overall black and white rates. With no residential segregation, both races

experienced the same geographic concentration of poverty. However, as the level of residential segregation increases, the geographic concentration of black poverty increases till in the fourth hypothetical city, total residential segregation, Blacks experience a neighborhood poverty rate of .200 while Whites experience a neighborhood poverty rate of only .100.[1] Massey (1990) concluded that if a minority is highly segregated and experiences a high rate of poverty, the geographical concentration of poverty is unavoidable. Thus, the degree that minorities will experience differing degrees of poverty concentration is dependent on the minorities' overall rate of poverty and its degree of residential segregation in society (Massey and Eggers, 1990).

Even though the Civil Rights Act of 1968 prohibited discrimination in the sale or rental of housing, Massey, et al (1994) found that blacks had a tendency to move to other black neighborhoods regardless of their neighborhood type or poverty status. This tendency of black movers to move to other black neighborhoods suggests that a racially segregated housing market may still exist. This suggestion is supported by Newburger's study (1999) of the geographical mobility of whites and minorities, lower-income, first-time homebuyers who purchased houses in Philadelphia in 1995. Her study concluded that while minority homebuyers could purchase houses in expansion corridors, allowing minorities to chose from more central city neighborhoods than in the past, these expansion corridors tended to follow ongoing discrimination patterns. Further evidence of a racially segregated housing market is an estimate by a HUD official in the mid-1990s which estimated that between 2 and 10 million cases of housing discrimination occurred each year with the majority of these involving Blacks or other minorities (Fegin, 1999).

These studies, contrary to Wilson's (1987) argument regarding the influence of racism on concentrated poverty, suggest that as the level of racial residential segregation increases the greater the likelihood of increased poverty concentration and decreased opportunity to escape poverty. In sum, racial residential segregation, though not a labor market characteristic, is a structural factor that varies across labor markets that may modify individual labor market outcomes, contribute to patterns of unequal schooling, and isolate minorities from job opportunities.

The Relationship between Poverty, Income Inequality, and Median Household Income

The essence of poverty and inequality is that some people have a larger share of a society's wealth and income and others have smaller shares which leads to the concept of economic inequality (Formby, 1997). Poverty exists when individuals or families with the smallest shares of society's wealth and income cannot acquire the market basket of goods deemed essential for an acceptable standard of living (Formby, 1997). Formby (1997) illustrate the similarity and differences between poverty (an absolute concept) and income inequality (a relative concept) through a hypothetical example, Table 2.4. If two population groups inhabit regions N and S with a population of five individuals (households) respectively and their incomes are ordered from lowest to highest, the absolute income distribution for each region is shown in Column 1 and 2, Table 2.4. If the minimum income required to purchase a market basket of goods deemed essential for an acceptable standard of living is $16, then a poverty threshold is established. Individuals (households) with an absolute income less than $16,the poverty threshold, are

Table 2.4 Two Simple Income Distributions – Region N and S

1a. Region N

		Shares (proportions)		Cumulative Shares	
	Person	Income $[A]	Person	Income	Person
	(1)	(2)	(3)	(4)	(5)
A	12	.20	.0923	.20	.0923
B	18	.20	.1385	.40	.2308
C	22	.20	.1692	.60	.4000
D	28	.20	.2154	.80	.6154
E	50	.20	.3846	1.00	1.0000
	$130	1.00	1.00		

1b. Region S

		Shares (proportions)		Cumulative Shares	
	Person	Income $[a]	Person	Income	Person
	(1)	(2)	(3)	(4)	(5)
A	10	.20	.10	.20	.10
B	15	.20	.15	.40	.25
C	20	.20	.20	.60	.45
D	25	.20	.25	.80	.70
E	30	.20	.30	1.00	1.00
	100	1.00	1.00		

a. Income are ordered from lowest to highest.

Source: Formby, John P. 1997. "Regional Poverty and Inequality in the United States." Pp 43 – 77 in *Poverty and Inequality: The Political Economy of Redistribution.* Table 1, pp 45

considered to be in poverty, for example, Individual A in the N region and Individuals F and G in the S region. However, by simply changing the poverty threshold from $16 to $12, the number of individuals (households) considered to be in poverty remains one for Region N, but changes from two to one in Region S which demonstrates that the level of poverty experienced by a region is determined by where the poverty threshold lies.5

However, an individual's (household) relative income is represented by their proportionate share of total regional income as shown in Column 4 of Table 1. The individuals (household) who are considered to be in poverty have a proportionate share of regional income of less than 15% while the individuals (household) with the highest income have a proportionate share of regional income greater than 30%. As illustrated above, to understand income inequality, the focus must be on relative income

distribution. One method to measure the level of income inequality of a region is the ratio of 90th percentile income to the 10th percentile income (P90/P10) (Cloutier, 1997). However, for simplicity and to stay within the constraints of our discussion, income inequality for our example will be determined by using the ratio of the 80th percentile income to the 20th percentile (P80/P20). In our example, the P80/P20 ratio reveals that the individuals (household) with the highest income earned three to four times as much as the individuals (household) with the lowest incomes (Region N = 4.17 (.3846 / .0923); Region S = 3.00 (.30 / .10)) and that income inequality is greatest in Region N.

Yet, to assess a region only on the level of poverty or its income inequality ignores the region's ability to generate income. "Regional income measures are important because they provide indications of personal and community economic welfare and, compared over time, of economic growth" (Bendavid-Val, 1991:41). An important income measure is median household income (Bendavid-Val, 1991). Median household income is the dollar value that divides the household income distribution into two equal groups. In our example, the median household income for Region N is $22 while Region S median household income is $20. Thus, if one was to make a comparison of Region N to Region S, the comparison would suggest that the level of economic activity in Region N is greater than in Region S and may account for the lower poverty rate and the higher income inequality experienced by Region N.

This hypothetical example illustrates the underlying linkage between Income Inequality, Median Household Income, and Poverty. This linkage is strengthen by Chakrovorty's (1996) observation that regions with a high percentage of employment in manufacturing can expect to experience higher labor wages and greater income equality,

while other areas that have undergone economic restructuring to an information-processing and service economic may find a higher level of income and inequality. Danziger (1976) found that Finance, Insurance, and Real Estate industries are associated with high but unequal distribution of income while professional and related services were associated with low but equitable distribution of income. Each industry has associated trade-off between equity and income level which implies that area developers should be interested not only in the number and types of jobs that an industry offers but also its impact on the region level and distribution of income (Danziger, 1976). The implication that as a result of the shift from the production of goods to information-processing and service industries (W.J. Wilson, 1987, 1996, Kasarda, 1985, 1989, 1995) with its polarized earning distribution (Howell and Wolf, 1991; Harrison and Bluestone, 1988) an area median income and its level of income inequality will be affected, just as economic restructuring has affected the distribution of poverty between the MSA and its central city. Of interest is whether the effects of economic restructuring on Median Household Income and Income Inequality is similar to its effects on the distribution of metropolitan area poverty between the metropolitan area and its central city.

Second, as a result of the transformation of a region's economic infrastructure there is a greater demand for high skill workers (Kasarda, 1995, 1990; 1989, Gottschalk and Joyce, 1996; Wilson, 1987, 1991). The human capital theory proposes that individuals create opportunities for themselves by acquiring skills and knowledge required by the labor market (Pindus and Nightingale, 1995). As a result of increased skills and knowledge, the workers' productivity increases as well as their wages because workers are paid for their marginal product (Pindus and Nightingale, 1995). Thus, a worker with

greater human capital is paid more than a worker with little or no human capital, hence, the relationship between educational attainment and the distribution of income (Lerman and Schmidt, 1999; Haveman, 1997; Harrison and Bluestone, 1990; Chakrovorty, 1996).

Finally, regardless of an individual's human capital, if an individual is constrained due to residential segregation based on the color of their skin, then access to a full range of benefits (education, employment, safety, etc) may be denied (Massey, 1994). Massey (1994) and others (Wilson, 1996, 1987; Orfield, 1992) observed that as a result of segregation, Blacks are far more likely to experience inferior schools and isolation from employment The effects of racial residential segregation is two-fold. First, spatial segregation implies differential access to opportunities and rewards as evidenced by limited opportunity in the local job markets (Wilson, W.J., 1996, 1987; Lewin-Epstein and Semyonov, 1992; Kasarda, 1995). Second, the segregated group's earning is highly dependent on the characteristics of the local labor market (Lewin-Epstein and Semyonov, 1992) as demonstrated by less educated central city blacks receiving lower wages than their suburban counterparts with a similar level of education (Wilson, W.J., 1996). In sum, segregation socially isolates individuals and families, reduces their ability to acquire human capital skills, and their ability to obtain meaningful employment preventing them from escaping poverty.

The previous discussions suggest that local economic and social conditions (economic infrastructure, skill requirements, and racial residential segregation) drive wages, which determines median household income and provides an indication of personal and community economic welfare. Formby's (1997) hypothetical example illustrates the similarity and difference between poverty and income inequality which

suggests the existence of a relationship that is shaped by labor market characteristics since the labor market determines the availability of jobs, the types of jobs, their location, and the income they generate. These discussions allude that changes in income inequality and median income are functions of change in the same variables (economic infrastructure, skill requirements, and racial residential segregation) that influence changes in poverty. Further support of the inter-relatedness of these relationships is provided by Cloutier (1997) finding that changes in the industrial and occupational mix and a widening educational distribution were major contributing factors to rising income inequality. The importance of education is underscored by the fact that by 1992 workers who had completed college earned approximately 65% more than workers who only completed high school (Caputo, 1995). Caputo (1995) also concluded that race continued to play a significant role in family income inequality and poverty. Additionally, Blank and Card (1993) demonstrated that a strong relationship exists between labor market conditions, poverty, and median family income. Thus, the hypotheses proposed to explain the concentration of poverty within an MSA central city may also explain central city median household income and income inequality.

Research Retrospect

Previous research attempted to quantify the increasing concentration of metropolitan area poverty in its central city and the causes for the increase or the research attempted to associate the increase in poverty with social or economic changes. As a result, three dimensions of poverty are suggested by previous research. These dimensions of poverty, Table 2.5, are the influences of changes in the MSA economic restructuring (changes in

Table 2.5 Examples of Poverty's Three Dimensions

Dimension	Author	Principal Variable(s)	Finding
Economic Restructuring	Galster, et al, 1997	Restructuring - Collapsed the three dimensions of restructuring, Job Changes, Manufacturing Changes, and Manufacturing Location Changes into a single variable	Found the larger the Restructuring Value, the greater the increase in neighborhood poverty rates.
	Hughes, 1989	Deindustrialization - Percentage change in manufacturing employment in the central county of an MSA Deconcentration - Difference between suburban and central county percentage change in manufacturing employment	Found that the interaction of Deindustrialization and Deconcentration appears to explain the change in the number of impacted ghetto (census tracts which exceed twice the MSA median level of Female Headed-households, Male Joblessness, Welfare Recipients, High School Dropouts).
	Jargowsky, 1997	Utilized three variables, Metropolitan Mean Household Income, Inequaltiy (Standard deviation of the household income distribution divided by the mean), and Neighborhood Sorting Index (ratio of neighborhood-income standard deviation to the household-income standard	Found that the number of poor people residing in high-poverty neighborhoods (poverty >40%) increased from 1.9 million to 3.7 million between 1970 and 1990. Jargowsky's model suggests that the level of metropolitan area economic opportunities determines ghetto & barrio poverty.
Skills Mismatch	Madden, 1996	Change in Educational Gina – median education of the over age 25 population and by the equality of the distribution of that educational attainment	Documented the increase in the concentration of metropolitan area poverty in the central city by examining the ratio of central city poverty rates to MSA poverty rates. The smallest increase in the ratio analysis occurred in Boston [174 (1969) to 192 (1989)], while the largest increase occurring in Memphis [96 (1969) to 126 (1989)] Demonstrated that poverty becomes more concentrated in the central city as the distribution of education becomes more unequal between the central city and its suburbs
	Galster, et al, 1997	Educational Mismatch – ratio of (weighted) average educational attainment of the employees in the metropolitan area to the mean education of those age 25 and older in the tract	Concluded that as this ratio exceed unity, the greater the chance the tract would experience higher poverty growth
Racial Segregation	Massey & Denton, 1993	Racial Segregation –the racial residential segregation of African Americans	Demonstrated through the use of four hypothetical cities that " . . . racial segregation acts to concentrate poor blacks in a small number of neighborhoods, raising the poverty rates . . ." (Massey & Denton, 1993: 123). Concluded that a racially segregated U.S. Housing market geographically concentrated poverty.
	Fegin, 1999	Racial Residential Segregation - the racial residential segregation of African Americans	Concluded that a racially segregated housing market results in limited employment opportunities and educational opportunities resulting in increased black poverty rates.

availability of jobs, changes in types of jobs, changes in location of jobs), skills mismatch (educational attainment), and racial residential segregation (using an index of dissimilarity). Previous researchers have used a variety of methods to measure these three dimensions. For examples, the variable(s) used to reflect the influence of economic restructuring has ranged from the use of a single aggregate variable (Galster, et al, 1997; Jargowsky, 1997), or to the use of a single variable to reflect changes in manufacturing and or service sector employment (Eggers and Massey, 1992; Hughes, 1989), or to using multiple economic sector variables (Steinacker, 1998; Bingham and Zhang, 1997). Galster, et al, (1997) collapsed the three dimensions of restructuring, Table 2.6, into a single variable, RESTRUCTURING, which allowed them to evaluate the relationship between metropolitan area economic restructuring and changing neighborhood poverty rates. They concluded that a larger value of RESTRUCTURING was associated with increases in neighborhood poverty and that black neighborhoods' poverty rates were especially sensitive to economic restructuring. Jargowsky (1997) used two variables – Metropolitan Mean Household Income and Inequality - that are determined by the income generation process and reflect the macroeconomic and institutional functioning of

Table 2.6 Galster, et al, RESTRUCTURING Variable

Dimensions of Economic Restructuring	Principal Components of RESTRUCTURING Variable	Definition of Principal Components Of RESTRUCTURING Variable
Changes in Availability of Jobs	Job Changes	Decline in the ratio of MSA Jobs to MSA Population, 1980 to 1988
Changes in Types of Jobs	Manufacturing Changes	Decline in the fraction of MSA Manufacturing Employment, 1980 to 1988
Changes in Locations of Jobs	Manufacturing Location Change	Decline in the ratio of manufacturing jobs in observed tract to the total number of MSA manufacturing jobs

the labor market as well as transfers payment and other sources of income as proxy for a metropolitan area economic infrastructure. Jargowsky (1997) used a third variable – Neighborhood Sorting Index – to represent economic segregation (ratio of neighborhood-income standard deviation to household income standard deviation). The resulting predicted poverty levels for 1990 when compared to the actual 1990 poverty levels reveals an extremely close correspondence between predicted values and actual values, r>.95 (Jargowsky, 1997). As a result, he concluded that neighborhood poverty is largely the result of a metropolitan-wide process, which can be measured as Metropolitan Mean Household Income, Inequality, and Neighborhood Sorting Index. Hughes (1989) used the percentage change in manufacturing employment in the central county of an MSA (Deindustrialization) and the difference between suburban and central county percentage change in manufacturing employment (Deconcentration). Using these variables, his regression models tested and demonstrated the "association of impacted ghetto formation with central-city deindustrialization and with city-suburbs manufacturing deconcentration" Hughes (1989: 200). The availability of operative jobs (manufacturing) and the relative size of the service sector was used by Eggers and Massey (1992) to measure the change in the availability and types of jobs while the suburbanization of manufacturing measured the changing location of jobs. This allowed them to demonstrate the effect of economic restructuring on metropolitan poverty rates. Bingham and Zhang (1997) examined the relationship between twenty-four neighborhoods' economic activity and poverty rates. Their finding substantiates the inter-relatedness of poverty and economic structure. First, a stable and well paying employment base provides a variety of employment opportunities that are essential in preventing the start of the poverty cycle.

Second, the critical neighborhood poverty rate may be lower than the generally accepted 40% poverty rates associated with ghettos (Bingham and Zhang, 1997). The critical neighborhood poverty rate may be as low as 10%. Bingham and Zhang (1997) observed that once neighborhood poverty rates reach and exceed 10%, economic deterioration begins to occur as neighborhood employment opportunities begin to change from high-income economic activities (commercial banks, legal services, Doctor offices and clinics) to ghetto economic activities (family social services, job-training and vocational rehabilitation services). Steinacker (1998) combined sixty two-digit standard industrial codes used in the County Business Pattern into thirteen Economic Sectors to measure the relative and absolute change in the number of establishments between the central cities, their suburbs, and non-metropolitan areas to evaluate the impact of economic restructuring on central city economy. The effort demonstrated that central cities frequently attracted more new firms than other locations but that their growth rate was below the growth rate for their suburbs, the non-metropolitan areas, and the nation. A paper by Johnson and Oliver (1992) assessed the impact of economic restructuring on employment opportunities of black males. Their analysis demonstrated that the employment opportunities of black males were significantly and negatively impacted by the percent change in transformative employment (deindustrialization) and the absolute difference in suburban versus central city total employment (deconcentration). And finally, Madden (1996:1594) evaluated the "changes in the concentration of metropolitan poverty in the central city as a function of changes in MSA characteristics." The metropolitan characteristics that he identified which exerted the greatest influences over the increasing concentration of MSA poverty in the central city were (1) changes in the

proportion of residents in the central city, (2) the MSA wage and salary Gini coefficient, and (3) the MSA educational Gini coefficient.

However, economic restructuring is not the only characteristic that offers an explanation for the increasing concentration of poverty in the central city. The increasing demand for a highly skilled labor force is creating a mismatch between available labor force skills and labor market demand for skills influencing poverty levels. Madden (1996) demonstrated that poverty becomes more concentrated in the central city as the distribution of education (as measured by an increase in Gini) becomes more unequal between the central city and its suburbs. Galster, et al, (1997) used the ratio of average educational attainment of employees in the metropolitan area to the mean educational attainment of those ages 25 and older in a tract as a proxy for the skill level of the residents in the tract. They found that as this ratio exceeds unity, the greater the educational disadvantage of tract residents and the greater the chance that the tract would experience higher poverty growth and adversely affect its future economic status.

Though not a labor market characteristic, the influence of racial residential segregation on poverty cannot be ignored. After all, housing markets do more than distribute housing, they distribute employment and education (Massey, 1994). Massey's, et al, (1994) examination of Black and White mobility in U.S. Cities concluded that a racially segregated U.S. Housing market geographically concentrated poverty and limited Blacks' housing options to the poorest and most disadvantaged neighborhoods. As a result of racially segregated housing markets, minorities face limited employment opportunities (Fegin, 1999) and inadequate educational opportunities (Fegin, 1999; Orfield, 1992). The impact of segregation coupled with economic restructuring increased

the rate of poverty among blacks who were confined because of segregation to exclusively black neighborhoods which increased the geographic concentration of poverty (Massey, et al, 1991).

Summary

Clearly, the economic infrastructure of the MSA and its central city has changed. This change is demonstrated by the employment shift from production to service industry during which a disproportional number of high wage jobs requiring manual skills were destroyed and replaced by high wage service jobs requiring knowledge and skills (W.J. Wilson, 1987, 1996, Kasarda, 1985, 1989, 1995). Accompanying this economic infrastructure restructuring has been the realignment to the suburbs, overseas, or the disappearance of central city manufacturing industry which has been replaced by service jobs (W.J. Wilson, 1987, 1996, Kasarda, 1985, 1989, 1995). And though the service sector has created millions of new jobs, these jobs tend to be associated with a polarized earning distribution with educational attainment as the separator from low paying and high paying jobs (Harrison and Bluestone, 1988; Wilson, 1987). The inter-relatedness of changes in the economic infrastructure of the MSA and its central city and changes in the MSA and central city poverty have been demonstrated by several researchers (Steinacker, 1998; Bingham and Zhang, 1997; Galaster, et al, 1997; Jargowsky, 1997; Eggers and Massey, 1991: Hughes, 1989). Thus, economic infrastructure restructuring has not only affected the distribution of poverty between an MSA and its central city because of the loss of employment opportunities and from the polarization of the labor market, it has

influenced the central city median income and its level of income inequality as a result of these profound structural changes.

As a result of economic restructuring, there has been an increased demand for high-skilled workers and a reduced demand for less-skilled workers (Kasarda, 1995, 1990; 1989, Gottschalk and Joyce, 1996; Wilson, 1987, 1991). Unfortunately, the educational level/skills required for employment rose more quickly than the educational level/skills of the workforce; thus, the labor supply (workers) was unable to adjust to meet the new employment demands of the labor market (firms) (Holzer and Vroman, 1992). This disconnect between the skills required for employment and those available in the labor market has influenced the change in the distribution of poverty between the MSA and its central city (Madden, 1996; Galster, et al; 1997). Additionally, the polarization of the labor force wages (Harrison and Bluestone, 1988) along with changes in the distribution of employment opportunities between the MSA and its central city (Wilson, 1987, 1996; Kasarda, 1985, 1989, 1995) may have influenced changes in the central city median income and level of income inequality.

Though racial residential segregation is arguably not a labor market characteristic, it is a structural factor that varies across labor markets that may modify individual labor market outcomes. Racial residential segregation contributes to patterns of unequal schooling and isolates minorities from job opportunities (Massey, 1994; Wilson, W.J., 1996, 1987; Orfield, 1992). Thus, as the level of racial segregation increases, the greater the likelihood of increased poverty concentration and decreased opportunities to escape poverty.

In conclusion, it appears that the literature supports Wilson's hypothesis that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skilled requirements for employment provide an explanation for the increasing concentration of metropolitan area poverty in its central city. However, the literature, contrary to W.J. Wilson's argument, suggests that racial segregation is as responsible for the increasing concentration of metropolitan area poverty in its central city as the economic restructuring of the U.S. economy. It appears that these three variables (Economic Infrastructure, Skills Mismatch, and Racial Residential Segregation) are complimentary factors in shaping the distribution of poverty between the MSA and its central city. This study seeks to expand our understanding of their complimentary relationship and the influence it exerts on the distribution of poverty between an MSA and its central city. This study will examine if the proportional distribution of economic infrastructure, skills mismatch between the central city and its metropolitan area and the level of racial residential segregation influences the proportion of metropolitan area poverty located in its central city. This study will also examine if these variables exert similar influence on central city income inequality and median household income.

NOTES

[1] Refer to Massey, Douglas S. 1990. "American Apartheid: Segregation and the Making of the Underclass." *American Journal of Sociology.* Vol 96 No 2. pp 329 – 357 for a full discussion.

[2] Refer to Formby, John P. 1997. "Regional Poverty and Inequality in the United States." *Poverty and Inequality: The Political Economy of Redistribution.* pp 43 – 77 for a full discussion.

Chapter 3

RESEARCH METHODOLOGY

Overview

The reasons for concentrated poverty in the central city are still a matter for debate. Wilson's (1987) hypothesis suggests that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skills requirements for employment provide an explanation for the increasing concentration of metropolitan area poverty in its central city. Massey (1990, 1994) and others (Massey, Gross, and Shibuya, 1994; Feagin, 1999; Orfield, 1992), contrary to W.J. Wilson's argument, suggests that racism represented by racial residential segregation is responsible for geographically concentrated poverty. Additionally, these same variables may also influence central city income inequality and median household income (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995).

These variables (economic restructuring, skills mismatch, and racial residential segregation) appear to have a complimentary relationship in shaping the distribution of metropolitan area poverty. This study seeks to expand our understanding of their complimentary relationships and the influence it exerts on the distribution of poverty between an MSA and its central city. This study will examine if the proportional distribution of economic infrastructure, skills mismatch between the central city and its metropolitan area and the level of racial residential segregation influences the proportion of metropolitan area poverty located in its central city. This study will also examine if these variables exert similar influences on central city income inequality and median household income.

Research Design

This study utilizes multiple regression models to explain variations in the distribution of metropolitan area poverty between the metropolitan area and its central city in terms of variation in the proportional distribution of economic infrastructure, skills mismatch between the central city and its metropolitan area and the level of racial residential segregation which exists between the central city and its metropolitan area. Previous researchers (W.J. Wilson, 1987, 1996; Teitz and Chapple, 1998; Kasarda, 1995, 1990; Harrison and Bluestone, 1988; Massey 1994, 1990; Massey, et al, 1994; Feagin, 1999; Orfield, 1992) have suggested these variables provide an explanation for the distribution of metropolitan area poverty between the metropolitan area and its central city. Additional multiple regression models will examine if variation in central city income inequality and median household income can be explained in terms of variation of these same variables as suggested by previous research (Bland and Card, 1993; Cloutier, 1997; Caputo, 1995).

The result of this analysis will provide evidence that will either support or fail to support W.J. Wilson's (1987) assertion that the economic restructuring of the US. economy is more responsible for the increasing concentration of metropolitan area poverty in its central city than racism (Massey, 1990, 1994; Massey, Gross, and Shibuya, 1994; Feagin, 1999; Orfield, 1992). The analysis will also provide support for or fail to support the suggestion that economic restructuring, skill mismatch, and racial residential segregation similarly influences central city income inequality and median household income (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995).

Specifically, this study will examine the following hypotheses:

1. The proportion of metropolitan area poverty located in its central city is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.
2. Central city income inequality is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.
3. Central city median household income is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.
4. The proportion of metropolitan area poverty located in its central city is not influenced differently by 1970 and 1990's proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.

5A. The proportional distribution of economic infrastructure between the MSA and its central city has not changed between 1970 and 1990.

5B. The proportional distribution of skilled labor force between the MSA and its central city has not changed between 1970 and 1990.

5C. The Index of Dissimilarity between the MSA and its central city has not changed between 1970 and 1990.

5D. Changes in the proportion of metropolitan area poverty located in its central city has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.

6. Changes in Central City Income Inequality has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.
7. Changes in central city Median Household Income has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.
8. The 1970 – 1990 changes in the proportion of metropolitan area poverty located in the central city experienced by concentric and non-concentric central cities are not influenced similarly by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity.
9. The proportion of metropolitan area poverty located in its central city has not changed between 1970 and 1990.

DATA

Data for this study was obtained from the State the of Nation's Cities Database 2.2a (developed and maintained by the Center for Urban and Policy Research at Rutgers University), the Historical Census Projects, Department of History, University of Minnesota, Integrated Public Use Microdata Series: Version 2.0 (IPUMS), and the State of the City Data System (developed and maintained by HUD USER – Policy Development and Research Information Services). The State of the Nation's Cities Database[1] is a list of seventy-seven cities and their surrounding metropolitan areas. The seventy-seven cities include the nation's fifty largest cities along with additional cities to ensure at least one city report from each state. The State of the Nation's Cities Database integrates data from the U.S. Bureau of the Census, U.S. Bureau of Labor Statistics, and other sources to "present a comprehensive description of social and economic conditions in America's urban centers" (SONC, 2000). The IPUMS[2] data "consists of twenty-five high-precision samples of the American population drawn from the thirteen federal censuses (Ruggles and Sobek, 2000). IPUMS is a series of compatible-format individual-level representative samples of the 13 federal censuses from 1850 to 1990 and provides information on a broad range of population characteristics, including labor-force participation, occupational structure, education, ethnicity, and household composition (Ruggles and Sobek, 2000). The State of the Cities Data System[3] provides data for over 500 individual metropolitan areas, central cities, and suburbs (SOCDS, 2000).

Data from these three data sets will be merged together to create a data set containing employment data from five major industrial sectors, educational achievement of the employed labor force (skilled labor force), and an Index of Dissimilarity (racial

residential segregation). The resulting data set consists of sixty cities and their surrounding metropolitan areas, due to the exclusion of seventeen cities with missing or unreliable data, for use in this study. The sixty cities and their surrounding metropolitan areas used in this study may or may not be representative of other metropolitan areas.

Variables

Central City Poverty (CP) - the dependent variable will be defined as the proportion of metropolitan area poverty located in its central city (central city persons in poverty/ MSA persons in poverty). The poverty rate used is the percentage of persons residing in the central city below the federally defined poverty level. The source of this data is the State of the Nation's Cities, Version 2.0 database.

Change in Central City Poverty (CCP) – the dependent variable will be defined as change in the proportional distribution of poverty between the MSA and its central city. The variable is operationalized as the 1970 central city proportion of metropolitan area poverty minus the 1990 central city proportion of metropolitan area poverty. The source of this data is the State of the Nation's Cities, Version 2.0 database.

Central City Income Inequality (CII) – the dependent variable will be defined as the central city family income in the 90^{th} percentile divided by the central city family income in the 10^{th} percentile. The source of this data is the State of the Nation's Cities Version 2.0 database.

Change in Central City Income Inequality (CFINQ) – the dependent variable will be defined as the change in the central city income inequality. The variable is

Table 3.1 Economic Infrastructure Sectors

Variables	Description
Manufacturing	Employment in Manufacturing Durable/NonDurable Goods and Construction
Professional Services	Employment in Finance, Insurance, and Real Estate; Professional and Related Services; and Business and Repair Services
Services	Employment in Wholesale and Retail Trade; Entertainment (e.g., amusement parks, etc); and Personal Services
Transportation	Employment in Transportation (e.g., Trucking Services; Warehousing and Storage)
Government	Employment in Federal/State/Local Public Administration

operationalized as the 1970 central city income inequality minus the 1990 central city inequality. The source of this data is the State of the Nation's Cities Version 2.0 database.

Central City Median Household Income (CMHI) – the dependent variable will be defined as the central city median household income. The source of this data is the State of the Nation's Cities, Version 2.0 database.

Change in Central City Median Household Income (CCMHI) – the dependent variable will be defined as the change in the central city median household income. The variable is operationalized as 1970 central city median household income minus the 1990 central city median household income. The source of this data is the State of the Nation's Cities, Version 2.0 database.

Central City Economic Infrastructure – five independent variables will be used to represent the proportion of key economic infrastructure sectors located in the central city. These key economic infrastructure sector variables are Manufacturing, Professional Services, Services, Transportation, and Governmental and are defined in Table 3.1. The source of this data is the State of the Nation's Cities, Version 2.0 database. Specifically, the proportion of each economic sector located in the central city is the central city employment in that economic sector divided by the total metropolitan employment in that

Table 3.2 Economic Infrastructure Sector Variables

Variables	Symbol	Description
Manufacturing	M	Central City Employment in Manufacturing Durable/NonDurable Goods and Construction / Total MSA Employment in Manufacturing Durable/NonDurable Goods and Construction
Professional Services	PS	Central City Employment in Finance, Insurance, and Real Estate; Professional and Related Services; and Business and Repair Services / Total MSA Employment in Finance, Insurance, and Real Estate; Professional and Related Services; and Business and Repair Services
Services	S	Central City Employment in Wholesale and Retail Trade; Entertainment (e.g., amusement parks, etc); and Personal Services / Total MSA Employment in Wholesale and Retail Trade; Entertainment (e.g., amusement parks, etc); and Personal Services
Transportation	T	Central City Employment in Transportation (e.g., Trucking Services; Warehousing and Storage) / Total MSA Employment in Transportation (e.g., Trucking Services; Warehousing and Storage)
Government	G	Central City Employment in Federal/State/Local Public Administration / Total MSA Employment in Federal/State/Local Public Administration

economic sector. Specific definition for each economic sector variable is provided in Table 3.2. The source of this data is the State of the Nation's Cities, Version 2.0, database.

The impact of the proportion of MSA economic infrastructure located in its central city on the distribution of metropolitan area poverty is evaluated by examining these five economic sector variables. W.J. Wilson (1987) and others (Teitz and Chapple, 1998; Kasarda, 1995, 1990; Harrison and Bluestone, 1988) assert, that as a result of economic restructuring, the increase in central city poverty occurred because of the loss of central city employment opportunities and from the polarization of the labor market that resulted from profound structural changes in the larger economy. The examination of these five economic sectors will determine whether the proportion of MSA economic infrastructure located in its central city is significant in explaining the proportion of metropolitan area poverty located in its central city. The results of this examination will provide support for

Table 3.3 Change in the Distribution of Economic Infrastructure Variables

Variables	Symbol	Description
Change in Central City Manufacturing Employment	CM	1990 Central City proportion of Manufacturing employment minus the 1970 Central City proportion of Manufacturing employment
Change in Central City Professional Services	CPS	1990 Central City proportion of Finance, Insurance, and Real Estate; Professional and Related Services; and Business and Repair Services employment minus the 1970 Central City proportion of Finance, Insurance, and Real Estate; Professional and Related Services; and Business and Repair Services employment
Change in Central City Services	CS	1990 Central City proportion of Wholesale and Retail Trade; Entertainment and Personal Services employment minus the 1970 Central City proportion of Wholesale and Retail Trade; Entertainment and Personal Services employment
Change in Central City Transportation	CT	1990 Central City proportion of Transportation employment minus the 1970 Central City proportion of Transportation employment
Change in Central City Government	CG	1990 Central City proportion of Federal/State/Local Public Administration employment minus the 1970 Central City proportion of Federal/State/Local Public Administration employment

or against Wilson's hypothesis. The hypothesis that these variables are significant, as suggested by Blank and Card and others (Cloutier, 1997; Caputo, 1995) in explaining central city income inequality and median household income will also be examined.

Change in the Distribution of Economic Infrastructure - will be defined as changes in the proportional distribution of the previously defined five economic infrastructure sector variables, Table 3.2, between the MSA and its central city. These variables are operationalized as the 1990 central city proportion of metropolitan area economic infrastructure minus the 1970 central city proportion of metropolitan area economic infrastructure. Specific definition for each economic sector change variable is provided in Table 3.3.

The impact of changes in the MSA economic infrastructure and its redistribution between the MSA and its central city on the distribution of poverty between the MSA and its central city is evaluated by examining these five economic sector variables. These

variables represent the change in the proportion of central city employment to MSA employment in five economic sectors of the economy between 1970 and 1990. As operationalized, these variables measure relative changes rather than absolute changes in economic sector employment between the MSA and its central city. Large absolute declines in any economic sector in the central city will inevitably have serious negative repercussions. Therefore, it is of greater interest to study relative changes to assess the influence that changes in the proportional distribution of an MSA economic infrastructure between the MSA and its central city has on changes in the proportional distribution of poverty between the MSA and its central city. If the proportional distribution of an economic sector between the MSA and its central city has remained constant, then the value of the economic sector variable will be zero (1990 – 1970 = 0). If however, the proportional distribution of the economic sector has changed, then a positive value would indicate a gain in employment, while a negative value would indicate a loss of employment in that economic sector for the central city.

Central City Skilled Labor Force – two educational variables, Less Than High School education and College graduates, will be used to assess the skill level of the metropolitan area labor force and are defined in Table 3.4. The source of this data is the 1970 and 1990 IPUMS. The distribution of the metropolitan area skilled labor force will

Table 3.4 Educational Attainment

Variable	Description
Less Than High School	Employed Workers with Less than a 12th Grade Education
College Graduate	Employed Workers with an Awarded Bachelor's Degree or Higher

Table 3.5 Educational Attainment Variables

Variable	Symbol	Description
Less Than High School	LTHS	Central City Employed Workers with Less than a 12th Grade Education / Total MSA Employed Workers with Less than a 12th Grade Education
College Graduate	CG	Central City Employed Workers with an Awarded Bachelor's Degree or Higher / Total MSA Employed Workers with an Awarded Bachelor's Degree or Higher

be assessed as the proportion of each educational variable located in the central city. Conceptually, the number of employed central city workers with Less than High School Education or College Graduate is divided by the total number of metropolitan employed workers with Less than High School Education or College Graduate. Specific definition for each Skilled Labor Force variable is provided in Table 3.5.

The assertion by W.J. Wilson (1987) and others (Kasarda, 1985, 1989, 1995; Harrison and Bluestone, 1988) is that as employment shifts from production to service industry a disproportional number of high wage jobs requiring manual skills (less than a high school education) were destroyed and replaced by high wage service jobs requiring knowledge and skills (college graduate) which increased central city poverty. By examining the proportion of these two metropolitan area skilled labor force indicators located in its central city, their significance in explaining the proportion of metropolitan area poverty can be assessed. Support for or against Wilson's hypothesis will be provided as a result of this assessment. The hypothesis that these variables are significant in explaining central city income inequality and median household income will also be examined.

Change in the Distribution of a Skilled Labor Force– will be defined as changes in the proportional distribution of the two previously defined educational variables

Table 3.6 Educational Attainment Change Variables

Variable	Symbol	Description
Less Than High School	CLTHS	1990 Central City proportion of Employed Workers with Less than a 12th Grade Education minus the 1970 Central City proportion of Central City Workers with Less than a 12th Grade Education
College Graduate	CCG	1990 Central City proportion of Employed Workers with an Awarded Bachelor's Degree or Higher minus the 1970 Central City proportion of Employed Workers with an Awarded Bachelor's Degree or Higher

representing the metropolitan area skilled labor force, Table 3.5, between the MSA and its central city. These educational attainment change variables are operationalized as the 1990 central city proportion of employed central city workers with Less than High School Education or College Graduate is minus the 1970 central city proportion of employed central city workers with Less than High School Education or College Graduate, Table 3.6.

If the proportional distribution of the skilled labor force between the MSA and its central city has remained constant, the value of the variable will be zero (0). If however, the distribution of the labor force skill level has changed, then a positive value would indicate a growth in central city employment in economic sectors that have higher educational or skills requirements. The source of this data is the 1970 and 1990 IPUMS.

Racial Residential Segregation (CID) – the level of racial residential segregation which exists in the metropolitan area will be established through the use of the Index of Dissimilarity which will capture the extent that Blacks and Whites are evenly distributed between the central city and its metropolitan area. Each group is considered evenly distributed between the MSA and its central city when each area has the same relative number of each group. If one group were entirely segregated, the index would take on its

maximum value of 1 while if individuals were randomly distributed, the index would approach its minimum value of 0. The index reports the proportion of either member of the group that would have to move from one area to another to eliminate segregation, an index of 0. (Massey and Eggers, 1990; Farley and Fry, 1994, 1993, 1992). The Index of Dissimilarity is operationally defined as

$$D_{xy} = .5 * \left[(M_C / M_M) - (W_C / W_M) \right]$$

is where M_c and W_c are the number of Black and White members in the central city and M_M (Blacks) and W_M (White) are the MSA totals. The source of the data used to determine the Index of Dissimilarity is the State of the Nation's Cities, Version 2.0 database.

Though Wilson (1987, 1996) argues that the economic restructuring of the U.S. economy is more responsible for the increasing concentration of metropolitan area poverty in its central city than racism, others argue (Massey 1990, 1994; Massey, Gross, and Shibuya, 1994; Feagin, 1999; Orfield, 1992) that racism represented by racial residential segregation is responsible for geographically concentrated poverty. Evidence for or against Wilson's hypothesis will be established by examining whether or not racial residential segregation is significant in explaining the proportion of metropolitan area poverty located in its central city. The influence of racial residential segregation on central city income inequality and median household income will also be examined.

Change in Residential Segregation (CCID) – will be operationally defined as the 1990 Index of Dissimilarity minus the 1970 Index of Dissimilarity. If the Index of Dissimilarity has remained constant, the value of the variable will be zero (0). If, however, the Index of Dissimilarity has changed, a positive value would indicate a

decrease in the level of racial residential segregation, while a negative value would indicate an increase in the level of racial residential segregation.

Models and Statistical Analysis

The Analysis Plan, Table 3.7, articulates the research hypotheses and specifies the ordinary least squares regression model or statistical test used to evaluate each hypothesis. Ordinary least squares regression is used to evaluate the effects of the independent variables on the proportion of metropolitan area poverty located in the metropolitan area central city. Ordinary least squares regression is also used to evaluate the effects of changes in the independent variables on changes in the proportion of metropolitan area poverty located in the metropolitan area central city. The objective is to develop an ordinary least squares regression model that explains variations in the proportion of metropolitan area poverty located in the central city in terms of economic and social variables that previous researchers have suggested significantly influences the distribution of metropolitan area poverty. Additional ordinary least squares regressions are used to evaluate the effects of the independent variables on central city income inequality and median household income.

The ordinary least squares regression models will be evaluated through the use of an overall regression *F*-test to test the Null hypothesis that there is no linear relationship between the dependent and independent variables (Norusis, 1999). For example, if the observed significance is less than .05, we can reject the null hypothesis that there is no linear relationship between the central city proportion of MSA poverty and the central city proportion of MSA economic infrastructure and skilled labor force, and Index of

Table 3.7 Analysis Plan

Hypothesis	Hypothesis Statement	Type of Data	Type of Analysis	Rationale
1. The proportion of metropolitan area poverty located in its central city is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$CP = \forall + \exists_1 M + \exists_2 PS + \exists_3 S + \exists_4 T + \exists_5 G + \exists_6 LTHS + \exists_7 CG + \exists_8 CID$ Testing several equivalent Null Hypotheses. 1. There is no linear relationship between the dependent variables and the independent variables 2. The partial regression coefficient is zero 3. The value of *Multiple* $\overline{R}^2$	Ratio	*Multiple* $\overline{R}^2$ *t*-Test *F*-Ratio *Goldfeld -Quandt*	Adjusted Multiple Coefficient of Determination signifies the proportion of variability in the dependent variable explained by the model. Standardized Beta Coefficient identifies the relative contribution of the respective variables. Test the Null Hypothesis that the partial regression coefficient is zero by using a *t*-Test. *F*-Ratio used to test for significance of the relationship between the dependent variables and the independent variables. Test the $H_o: B_1 \ldots B_k = 0$ Test for Heteroscedasticity
2. Central city income inequality is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$CII = \forall + \exists_1 M + \exists_2 PS + \exists_3 S + \exists_4 T + \exists_5 G + \exists_6 LTHS + \exists_7 CG + \exists_8 CID$ Testing several equivalent Null Hypotheses. 1. There is no linear relationship between the dependent variables and the independent variables 2. The partial regression coefficient is zero 3. The value of *Multiple* $\overline{R}^2$	Ratio	*Multiple* $\overline{R}^2$ *t*-Test *F*-Ratio *Goldfeld -Quandt*	Adjusted Multiple Coefficient of Determination signifies the proportion of variability in the dependent variable explained by the model. Standardized Beta Coefficient identifies the relative contribution of the respective variables. Test the Null Hypothesis that the partial regression coefficient is zero by using a *t*-Test. *F*-Ratio used to test for significance of the relationship between the dependent variables and the independent variables. Test the $H_o: B_1 \ldots B_k = 0$ Test for Heteroscedasticity

Table 3.7 Analysis Plan, Continued

Hypothesis	Hypothesis Statement	Type of Data	Type of Analysis	Rationale
3. Central city median household income is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$CMHI = \forall + \exists_1 M + \exists_2 PS + \exists_3 S + \exists_4 T + \exists_5 G + \exists_6 LTHS + \exists_7 CG + \exists_8 CID$ Testing several equivalent Null Hypotheses. 1. There is no linear relationship between the dependent variable and the independent variables 2. The partial regression coefficient is zero 3. The value of *Multiple* $\overline{R}^2$	Ratio	*Multiple* $\overline{R}^2$ *t*-Test *F*-Ratio *Goldfeld -Quandt*	Adjusted Multiple Coefficient of Determination signifies the proportion of variability in the dependent variable explained by the model. Standardized Beta Coefficient identifies the relative contribution of the respective variables. Test the Null Hypothesis that the partial regression coefficient is zero by using a *t*-Test. *F*-Ratio used to test for significance of the relationship between the dependent variables and the independent variables. Test the H_0:B_1,..B_k=0 Test for Heteroscedasticity
4 The proportion of metropolitan area poverty located in its central city is not influenced differently by 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$F_{k,N+M-2k} = \dfrac{(ESS_r - ESS_{ur})/k}{ESS_{ur}/(NL+M-2k)}$	Ratio	*F*-Test	*F*-test to test the H_0 that 1970 and 1990 regression models are identical. (Economic Models & Economic Forecasting, page 115, Test Equality of Coefficients of Different Regressions).
5A. The proportional distribution of economic infrastructure between the MSA and its central city has not changed between 1970 and 1990.	$H_0 : EIS_{1970} - EIS_{1990} = 0$ $H_A : EIS_{1970} - EIS_{1990} \neq 0$	Ratio	*t-Test*	Paired sample *t*-Test selected because the hypothesis postulate that the two samples have the same means (two-tail test). Alpha equals .01 to minimize Type I error (accepting a Null Hypothesis as false when it is true).

Table 3.7 Analysis Plan, Continue

Hypothesis	Hypothesis Statement	Type of Data	Type of Analysis	Rationale
5B. The proportional distribution of skilled labor force between the MSA and its central city has not changed between 1970 and 1990.	$H_0 : EdEpl_{1970} - EdEpl_{1990} = 0$ $H_A : EdEpl_{1970} - EdEpl_{1990} \neq 0$	Ratio	*t-Test*	Paired sample *t*-Test selected because the hypothesis postulates that the two samples have the same means (two-tail test). Alpha equals .01 to minimize Type 1 error.
5C. The Index of Dissimilarity between the MSA and its central city has not changed between 1970 and 1990.	$H_0 : ID_{1970} - ID_{1990} = 0$ $H_A : ID_{1970} - ID_{1990} \neq 0$	Ratio	*t-Test*	Paired Sample *t*-Test selected because the hypothesis postulates that the two samples have the same means (two-tail test). Alpha equals .01 to minimize Type 1 error.
5D. Changes in the proportion of metropolitan area poverty located in its central city has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.	CCP = ∀ + ∃₁CM + ∃₂CPS + ∃₃CS + ∃₄CT + ∃₅CG + ∃₆CLTHS + ∃₇CCG + ∃₈CCID Testing several equivalent Null Hypotheses. 1. There is no linear relationship between the dependent variable and the independent variables 2. The partial regression coefficient is zero 3. The value of *Multiple* $\overline{R}^2$	Ratio	*Multiple* $\overline{R}^2$ *t*-Test *F*-Ratio *Goldfeld -Quandt*	Adjusted Multiple Coefficient of Determination signifies the proportion of variability in the dependent variable explained by the model. Standardized Beta Coefficient identifies the relative contribution of the respective variables. Test the Null Hypothesis that the partial regression coefficient is zero by using a *t*-Test. *F*-Ratio used to test for significance of the relationship between the dependent variable and the independent variables. Test the H_0:B_1,..B_k=0 Test for Heteroscedasticity

Table 3.7 Analysis Plan, Continued

Hypothesis	Hypothesis Statement	Type of Data	Type of Analysis	Rationale
6. Changes in central city Income Inequality has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.	CCFINQ = ∀ + ∃₁CM + ∃₂CPS + ∃₃CS + ∃₄CT + ∃₅CG + ∃₆CLTHS + ∃₇CCG + ∃₈CCID Testing several equivalent Null Hypotheses. 1. There is no linear relationship between the dependent variable and the independent variables. 2. The partial regression coefficient is zero. 3. The value of *Multiple* $\overline{R}^2$	Ratio	*Multiple* $\overline{R}^2$ *t*-Test *F*-Ratio *Goldfeld -Quandt*	Adjusted Multiple Coefficient of Determination signifies the proportion of variability in the dependent variable explained by the model. Standardized Beta Coefficient identifies the relative contribution of the respective variables. Test the Null Hypothesis that the partial regression coefficient is zero by using a *t*-Test. *F*-Ratio used to test for significance of the relationship between the dependent variable and the independent variables. Test the H_0:B_1,..B_k=0 Test for Heteroscedasticity
7. Changes in central city Median Household Income has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.	CMHIC = ∀ + ∃₁CM + ∃₂CPS + ∃₃CS + ∃₄CT + ∃₅CG + ∃₆CLTHS + ∃₇CCG + ∃₈CCID Testing several equivalent Null Hypotheses. 1. There is no linear relationship between the dependent variable and the independent variables. 2. The partial regression coefficient is zero. 3. The value of *Multiple* $\overline{R}^2$	Ratio	*Multiple* $\overline{R}^2$ *t*-Test *F*-Ratio *Goldfeld -Quandt*	Adjusted Multiple Coefficient of Determination signifies the proportion of variability in the dependent variable explained by the model. Standardized Beta Coefficient identifies the relative contribution of the respective variables. Test the Null Hypothesis that the partial regression coefficient is zero by using a *t*-Test. *F*-Ratio used to test for significance of the relationship between the dependent variable and the independent variables. Test the H_0:B_1,..B_k=0 Test for Heteroscedasticity
8. The 1970 – 1990 changes in the proportion of metropolitan area poverty located in the central city experienced by concentric and non-concentric central cities are not influenced similarly by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity.	$H_O : U_{cc} - U_{ncc} = 0$ $H_A : U_{cc} - U_{ncc} \neq 0$ $F_{k,N+M-2k} = \dfrac{(ESS_r - ESS_{ur})/k}{ESS_{ur}/(NL + M - 2k)}$	Ratio	*t*-Test *F*-Test	Paired sample *t*-test selected because hypothesis postulate that the two city types (Concentric and Nonconcentric) have the same means (two-tail test). *F*-test to test the H_0 that Concentric and Nonconcentric Cities regression models are identical. (Economic Models & Economic Forecasting, page 115, Test Equality of Coefficients of Different Regressions).
9. The proportion of metropolitan area poverty located in its central city has not changed between 1970 and 1990.	$H_O : CCPov_{1970} - CCPov_{1990} = 0$ $H_A : CCPov_{1970} - CCPov_{1990} \neq 0$	Ratio	*t-Test*	Paired Sample *t*-Test selected because the hypothesis postulates that the two samples have the same means (two-tail test). Alpha equals .01 to minimize Type I

Dissimilarity. A *t*-Test will be used to test the significance of the regression coefficients. Standardized *B*eta coefficients provide an indication of the " . . . relative influence of each independent variable on the dependent variable" (O'Sullivan and Rassel, 1989:428). The Multiple $\overline{R}^2$ of the multiple regression models identifies the proportion of the variability in the dependent variable explained by the model. The Goldfeld-Quandt Test will be used to determine if any Heteroscedasticity exists.

A paired sample *t*-Test (two-tail) is used to determine if a statistically significant change has occurred in the variable(s) between the first observation (1970) and the second observation (1990), e.g., is there a statistically significant difference between the means of the two samples. The Null hypothesis postulates that the two samples have the same means (Ho:μ1970 - μ1990 = 0), while the Alternative hypothesis postulates that the two samples have different means (Ho:μ1970 - μ1990 $\neq$ 0). Since the hypothesis postulates that the two samples have the same means, a paired sample *t*-test (two-tail) can be used to determine if the two samples have the same or different means (O'Sullivan & Rassel, 1989).

The analysis of whether or not the linear relationship which exists in 1970 between the central city proportion of MSA poverty and the central city proportion of MSA economic infrastructure, skilled labor force, and Index of Dissimilarity still exists in 1990 requires a different analytical approach. In essence, we are testing the Null hypothesis that the 1970 set of coefficients in the proportional poverty model is equal to the 1990 set of coefficients in the proportional poverty model. To test whether or not the set of coefficients for the proportional poverty model has changed, we will test the Null hypothesis that the 1970 and 1990 coefficients for the poverty model are equal. This will

be accomplished by using an F-test[4] to test the Null hypothesis that the 1970 and 1990 set of coefficients are equal. If the F statistic is greater than the critical value of the F distribution, the Null hypothesis is rejected and implies that 1970 and 1990 sets of proportional poverty model coefficients are statistically different. Rejection of the Null hypothesis implies that two separate regressions must be estimated and that the dynamics of the relationship between central city proportion of MSA poverty and the central city proportion of MSA economic infrastructure, skilled labor force, and Index of Dissimilarity has changed.

The examination of whether concentric and non-concentric cities (See Appendix A) experience similar rates of change between 1970 and 1990 requires two different analytical approaches. The first analysis is concerned with whether or not concentric and non-concentric cities experienced equal rates of change in the proportional distribution of economic infrastructure, skilled labor force, the Index of Dissimilarity and in the proportion of metropolitan area poverty located in the central city. Because the comparison is between two differing groups, an Independent Sample t-Test will be used to determine if a significant difference exists between the group's mean rate of change for each variable. The second analysis examines whether or not concentric and non-concentric cities experienced the same linear relationship between changes in the central city proportion of MSA poverty and changes in the central city proportion of MSA economic infrastructure and skilled labor force, and Index of Dissimilarity. An F-test[4] will be used to test the Null hypothesis that the concentric and non-concentric set of change coefficients are equal.

Research Limitations

The study will only examine the interaction of metropolitan and central city level variables of selected MSAs and their influence on the proportional distribution of poverty between the MSA and its central city. Analysis of variables will be between the MSA and its central city at the metropolitan level; analysis at the census tract level will not be accomplished. Though the concept of Metropolitan Statistical Areas has essentially remained constant through the years, there are comparability issues that may affect this study. Boundaries for metropolitan areas are adjusted during the census to account for growth during each ten-year period. As a result, some metropolitan areas may encompass less territory than earlier years and new metropolitan areas have been created. The SONC database attempts to minimize MSA boundary issues by aggregating the data to the 1993 MSA definitions (Glickman, et al, 1998). Three pairs of cities in the database share the same MSAPMSA codes (Los Angeles and Long Beach, CA; Minneapolis and St. Paul, MN; Kansas City, Kansas and Missouri). In these cases, the MSA measures are obtained by subtracting both central cities from the MSA.

Identification and analysis of the economic infrastructure variable will be based on the industrial sectors on the classification listed in the State of the Nation's Cities Database instead of using Standard Industrial Classification codes. The definition of other variables utilized in the study will be based on the definition provided in the State of the Nation's Cities Database or they have been defined in the report itself.

The availability of public transportation or other transportation issues will not be addressed in this study, nor will the migration of industrial sector employment or the

migration of individuals or families to other regions of the country or different nations be addressed. Additionally, the influence of public policy decisions (e.g., location of public housing) will not be addressed. Though other variables exist which may have an impact on the distribution of poverty between the MSA and its central city, those variables will not be addressed in the study.

Summary

This study seeks to understand whether the proportional distribution of an MSA's economic infrastructure, skilled labor force, and the Index of Dissimilarity influences the distribution of poverty between the MSA and its central city. The methodology for the proposed research has been outlined in the previous discussion and in the Analysis Plan.

Data for this study was obtained from the State of the Nation's Cities Database 2.2a, the Integrated Public Use Microdata Series: Version 2.0 (IPUMS), and the State of the Cities Data System. Data from these three databases was merged together to create a data set containing employment data from five major industrial sectors, skilled labor force (as measured by the educational achievement of the employed labor force), and an Index of Dissimilarity (racial residential segregation) for sixty cities and their surrounding metropolitan areas.

Notes:

[1] For a full discussion of the SONC refer to Center for Urban Policy Research Homepage, Rutgers University; accessed 31 January 2000; available from http;//www.policy.rutgers.edu/cupr; Internet.

[2] For a full discussion of the IPUMS, refer to: "What is the IPUMS?" available at http://www.ipums.umn.edu/~pipums/intro.html and "Chapter 2: Sample Designs" available at http://www.ipums.umn.edu/~pipums/chapter2/chapter2.htm.: Internet.

[3] For a full discussion of the SOCDS refer to Housing and Urban Development User – Policy Development and Research's Information Services. Available from http://webstage1.aspensys.com/SOCDS/SOCDS_Home.htm. Internet

[4] Full a full discussion of this *F*-test, refer to pages 115 –116 in. *Econometric Models and Economic Forecast, 3ed.* Pindyck Robert S. and Daniel L. Rubinfeld. 1991MacGraw-Hill Inc. New York

CHAPTER 4

DATA ANALYSIS

Data analysis results, interpretation, and conclusions concerning associations or relationships between and among the dependent and independent variables are discussed and presented below.

Descriptive Statistics:

Consistent with Wilson's hypothesis (1987) and Kasarda's (1989) finding, there is a decrease in Manufacturing employment and an increase in Professional Services and Services employment within the metropolitan area central city, Table 4.1. However, the increase in Professional Services and Services employment does not offset the loss of Manufacturing employment which has resulted in a net loss of central city employment. Nor does the increase in central city Professional Services and Services employment allow the central city to retain its proportion of metropolitan area employment in these

Table 4.1 1970 & 1990 Central City Descriptive Variables Statistics

Variables	1970			1990		
	Central City Proportion	Central City Mean	MSA Mean	Central City Proportion	Central City Mean	MSA Mean
Manufacturing	27.19%	69,095	185,312	22.40%	61,287	212,853
Prof. Services	31.05%	78,022	169,526	25.68%	112,724	317,046
Services	30.13%	69,787	158,294	25.04%	85,045	252,061
Transportation	29.58%	20,490	45,441	24.54%	16,477	47,313
Governmental	31.07%	17,326	38,167	26.17%	16,724	47,610
Total Employment	29.92%	254,720	596,740	25.06%	292,257	876,883
Less than High School	57.45%	90,774	67,226	50.48%	40,378	39,610
College Graduates	57.40%	32,526	27,851	49.60%	80,906	82,211

economic sectors or prevent Professional Services jobs from experiencing the greatest mean decrease in central city employment loss (5.37%) which is seconded by the mean loss in central city manufacturing employment (4.79%).

The mean decrease in central city proportion of MSA employment has also been accompanied by a mean decrease in the proportion of MSA workers employed in the central city with Less than a High School education and College Graduates. The central city proportion of MSA employed workers with Less than a High School education decreased from 57.45% to 50.48% between 1970 and 1990. Interestingly, the central city proportion of employed MSA's College Graduates decreased from 57.40% to 49.60% even though employment of central city workers with a college degree rose from 32,526 in 1970 to 80,906 in 1990.

Hypothesis 1: The proportion of metropolitan area poverty located in its central city is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.

The hypothesis relationship is that the proportion of metropolitan area poverty located in its central city is a function of the proportion of metropolitan area economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) which exists between the metropolitan area and its central city. The expectation is that the variables Manufacturing, Professional Service, and Less than High School education will be significant based on Wilson's hypothesis that the shift from good-producing to service-producing industries with its accompanying demand for high-

skilled workers has increased the concentration of metropolitan area poverty in its central city. Additionally, contrary to Wilson's assertion, racism represented by racial residential segregation is expected to be significant as argued by Massey (1990, 1994) and others (Massey, Gross, and Shibuya, 1994; Feagin, 1999, and Orfield, 1992).

The analysis of the hypothesis relationship indicates that a statistically significant relationship ($F<.01$) exists between the proportion of metropolitan area poverty located

Table 4.2 Poverty Model Analysis Results

		Poverty Model With Index of Dissimilarity			Poverty Model Without Index of Dissimilarity		
Model	**Variables**	**Standardized Beta Coefficients**	***t***	**Sig.**	**Standardized Beta Coefficients**	***t***	***Sig.***
1970[a]	(Constant)		.380	.706		4.813	.000
	Manufacturing	.544	1.919	.061	.311	.899	.373
	Professional Service	-.127	-.389	.699	-.124	-.307	.760
	Service	.159	.272	.787	-.170	-.236	.814
	Transportation	.697	1.603	.115	.587	1.095	.278
	Governmental	-.308	-1.361	.179	.163	.635	.528
	Less than High School	.428	3.242	**.002**	.460	2.823	**.004**
	College Graduate	-.352	-2.582	**.013**	-.426	-2.541	**.014**
	Index of Dissimilarity	.439	5.324	**.000**			
		$\overline{R^2}$ = .772 F = 26.042, Sig. .000			$\overline{R^2}$ = .653 F = .16.853, Sig. .000		
1990[b]	(Constant)		1.502	.139		6.848	.000
	Manufacturing	.441	1.436	.157	.047	.113	.910
	Professional Service	-.494	-.945	.349	.384	.551	.584
	Service	.803	1.184	.242	-.552	-.619	.539
	Transportation	.063	.216	.830	.272	.685	.497
	Governmental	.208	1.036	.305	.672	2.582	.013
	Less than High School	.211	2.133	**.038**	.307	2.276	**.027**
	College Graduate	-.139	-1.381	.173	-.269	-1.978	.053
	Index of Dissimilarity	.501	6.886	**.000**			
		$\overline{R^2}$ = .864 F = 47.822, Sig. .000			$\overline{R^2}$ = .742 F = 25.296, Sig. 000		

a. Dependent Variable: Poverty, 1970
b. Dependent Variable: Poverty, 1990
Note: The results of the Goldfeld-Quandt Test, Table B.7, indicates that we can attribute a statistically significant *F*-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

in its central city and the hypothesis variables (Table 4.2). Interestingly, none of the economic infrastructure variables are significant in either the 1970 or 1990 Poverty Model with or without the Index of Dissimilarity. Though the Less than High School education variable is significant in all models, the Index of Dissimilarity variable is the most significant variable in the Poverty models. The 1970 and 1990 Poverty Model without the Index of Dissimilarity explains over 65% ($\overline{R^2}$) of the observed variability in the proportion of metropolitan area poverty located in its central city. However, the inclusion of the Index of Dissimilarity variable improves the 1970 and 1990 Poverty model's ability to account for over 74% ($\overline{R^2}$) of the variation in the proportion of metropolitan area poverty located in the central city. These results coupled with the lack of significance associated with the economic restructuring variables and the significance of the Index of Dissimilarity variable fails to support to Wilson's assertion that economic restructuring is more responsible for the increasing concentration of metropolitan area poverty in its central city than racism.

Hypothesis 2: Central city income inequality is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.

The hypothesis relationship is that central city income inequality is a function of the proportion of metropolitan area economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) which exists between the metropolitan area and its central city. Though several authors (Blank and Card, 1993;

Table 4.3 Income Inequality Model Analysis Results

	1970			1990		
Variables	**Standardized Beta Coefficients**	***t***	**Sig.**	**Standardized Beta Coefficients**	***t***	***Sig.***
(Constant)		8.479	.000		6.362	.000
Manufacturing	-.948	-1.660	.103	.135	.169	.866
Professional Service	-3.13	-.475	.637	-.221	-.163	.871
Service	1.992	1.685	.098	-.197	-.112	.911
Transportation	-.930	-1.062	3293	-.323	-.428	.670
Governmental	.207	.453	.652	.399	.766	.447
Less than High School	.682	2.563	**.013**	-.052	-.201	.842
College Graduate	-.688	-2.505	**.015**	.167	.638	.526
Index of Dissimilarity	.064	.386	.701	.327	1.728	.090
	$\overline{R^2}$ = .076 F = 1.608, Sig. .146			$\overline{R^2}$ = .082 F = 1.659, Sig. .132		

a. Dependent Variable: Income Inequality, 1970
b. Dependent Variable: Income Inequality, 1990
Note: The results of the Goldfeld-Quandt Test, Table B.14, indicates that we can attribute a statistically significant *F*-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

Cloutier, 1997; Caputo, 1995) have suggested that a relationship exists between income inequality and labor market conditions, education, and race, this study does not reach a similar conclusion. Results from this analysis are not statistically significant (F>.05), Table 4.3. This study fails to support the hypothesis that the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city influences central city income inequality. The economic infrastructure variables and the Index of Dissimilarity variable (racial residential segregation) fails to demonstrate an effect on income inequality. Their standardized beta coefficients show only a weak influence in the 1970 and 1990 models. Though the education variables are significant in the 1970 model, their influence on income inequality evaporates in the 1990 model. Since neither model is

shown to be significant ($F > .05$), the variables' hypothesized relationship on Income Inequality is unsupported by this study.

Hypothesis 3: Central city median household income is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.

The hypothesis relation is that central city median household income is a function of the proportion of metropolitan area economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) which exists between the metropolitan area and its central city. Results from this analysis provide limited support for the hypothesized relationship that several authors (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995) have suggested exists, Table 4.4. Even though the models are

Table 4.4 Median Household Income Model Analysis Results

	1970			1990		
Variables	**Standardized Beta Coefficients**	***t***	**Sig.**	**Standardized Beta Coefficients**	***t***	***Sig.***
(Constant)		10.612	.000		11.533	.000
Manufacturing	-.322	-.659	.513	-.662	-.891	.377
Professional Service	-2.060	-3.651	**.001**	.379	.300	.765
Service	1.799	1.778	.081	-.687	-.419	.677
Transportation	.888	1.185	.241	1.711	2.440	**.018**
Governmental	.093	.238	.813	-.498	-1.027	.309
Less than High School	-.128	-.561	.577	-.236	-.986	.329
College Graduate	-.075	-.317	.753	-.070	-.289	.774
Index of Dissimilarity	-.059	-.418	.678	-.463	-2.630	**.011**
	$\overline{R^2} = .323$ $F = 4.523$, Sig. .000			$\overline{R^2} = .204$ $F = 2.894$, Sig. .010		

a. Dependent Variable: Median Household Income, 1970
b. Dependent Variable: Median Household Income, 1990
Note: The results of the Goldfeld-Quandt Test, Table B.18 indicates that we can attribute a statistically significant *F*-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

statistically significant ($F < .05$) and explain over 20% ($\overline{R^2}$) of the observed variability in Median Household Income, there is a lack of a constant dominant influence by any independent variable. The Professional Services variable has a relatively strong influence in the 1970 model as evidenced by its standardized beta coefficient demonstrating a strong contribution. However, by 1990, the Index of Dissimilarity (racial residential segregation), and the Transportation variable's standardized beta coefficient demonstrate the strongest influence on median household income.

The weak explanatory value of the model may be attributed to the exclusion of variables that assess the impact of dual-income families and female-headed households on median household income. The increasing reliance of families/households on two incomes and the lower wages typically received by females coupled with the increasing number of female-headed households influences income distribution (Chakravorty, 1996), an influence whose exclusion may have contributed to this study's limited support for the hypothesis relationship.

Hypothesis 4: The proportion of metropolitan area poverty located in its central city is not influenced differently by 1970 and 1990's proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.

Of interest is whether or not the linear relationship which exists in 1970 between the central city proportion of MSA poverty and the central city proportion of MSA economic infrastructure, skilled labor force, and Index of Dissimilarity still exists in 1990. In essence, we are testing the Null hypothesis that the 1970 set of coefficients in the

Table 4.5 Poverty Models ANOVA(a) Comparisons, 1970 - 1990

	Model	Sum of Square	Df	Mean Squares	F	Sig
1970	Regression	.387	8	.04831	26.042	.000(a)
	Residual	.09462	51	.001855		
	Total	.481	59			
1990	Regression	.421	8	.05267	47.822	.000(c)
	Residual	.05617	51	.001101		
	Total	.477	59			
1970 – 1990	Regression	.767	8	.09592	55.644	.000(a)
	Residual.	.191	111	.001724		
	Total	.959	119			

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Poverty, 1970
c. Dependent Variable: Poverty,1990
d. Dependent Variable: Poverty. 1970-1990

proportional poverty model is equal to the 1990 set of coefficients in the proportional poverty model. An *F*-test[l] tests the Null hypothesis that the 1970 and 1990 set of coefficients are equal. If the *F* statistic is greater than the critical value of the *F* distribution, the Null hypothesis is rejected and implies that 1970 and 1990 sets of proportional poverty model coefficients are statistically different.

The first step is to estimate each of the implied models, Table 4.5 and Table 4.6 (1970, 1990, and the 1970 –1990, which includes data from both years), and then perform an *F*-test[l] to determine if a significant difference exists. The analysis reveals that the *F* statistic (10.13) is greater than the critical value of the *F* distribution ($F_{3,114,05}$ = 2..68); therefore, we reject the null hypothesis which implies that the 1970 set of coefficients in the proportional poverty model is not equal to the 1990 set of proportional poverty model coefficients. Rejection of the Null hypothesis implies that separate regressions are required for 1970 and 1990 because the dynamic of the relationship between central city proportion of MSA poverty and the central city proportion of MSA economic infrastructure, skilled labor force, and Index of Dissimilarity has changed.

Table 4.6 Poverty Model Analysis Results

	1970			1990			1970 - 1990		
Variables	**Std. Beta Coefficients**	***t***	**Sig.**	**Std. Beta Coefficients**	***t***	**Sig.**	**Std Beta Coefficients**	***t***	Sig.
(Constant)		.380	.706		1.502	.139		1.837	.069
Manufacturing	.544	1.919	.061	.441	1.436	.157	.539	2.423	**.017**
Professional Service	-.127	-.389	.699	-.494	-.945	.349	-.353	-1.275	.205
Service	.159	.272	.787	.803	1.184	.242	.546	1.252	.213
Transportation	.697	1.603	.115	.063	.216	.830	.344	1.263	.209
Governmental	-.308	-1.361	.179	.208	1.036	.305	-.107	-.650	.517
Less than High School	.428	3.242	**.002**	.211	2.133	**.038**	.300	3.494	**.001**
College Graduate	-.352	-2.582	**.013**	-.139	-1.381	.173	-.221	-2.527	**.013**
Index of Dissimilarity	.439	5.324	**.000**	.501	6.886	**.000**	.470	7.986	**.000**
	$\overline{R^2}$ = .772 *F* = 26.042, Sig. .000			$\overline{R^2}$ = .864 *F* = 47.822, Sig. .000			$\overline{R^2}$ = .786 *F* = 55.644, Sig. .000		

a. Dependent Variable: Poverty, 1970
b. Dependent Variable: Poverty, 1990
c. Dependent Variable: Poverty, 1970 - 1990
Note: The results of the Goldfeld-Quandt Test, Tables B7 and B.22 indicates that we can attribute a statistically significant *F*-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

It is interesting to note that, consistent with Wilson's argument, the Less Than High School variable is statistically significant in all three models. However, the significance of racism, the Index of Dissimilarity, contrary to Wilson's argument exerts the strongest influence in each of the models based on its standardized beta coefficient and is statistically significant in all three models. Noticeably absent are statistically significant economic infrastructure variables which Wilson's argues are more responsible for the increasing concentration of metropolitan area poverty in its central city.

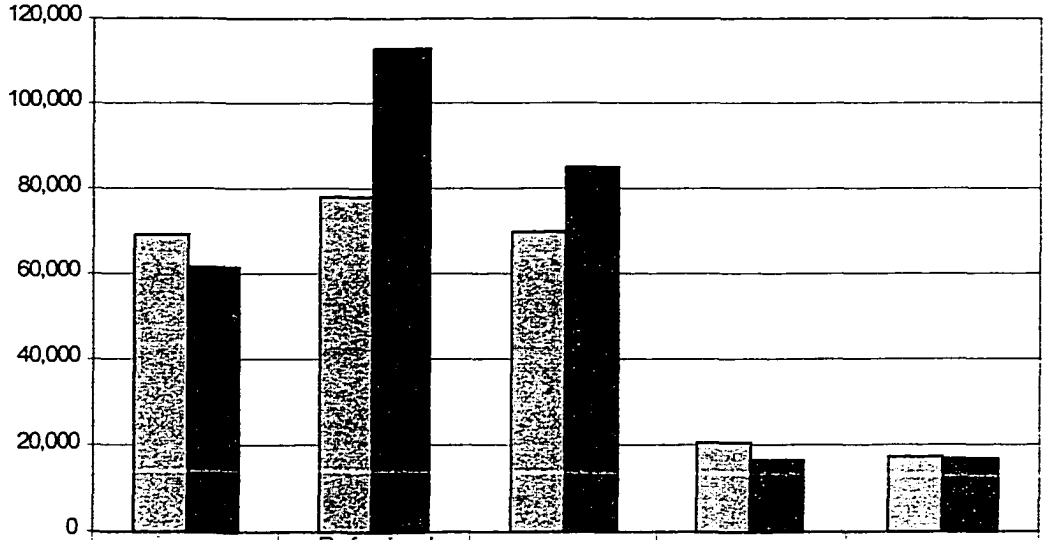
These findings suggest that even though the dynamic which distributes poverty between the metropolitan area and it central city has changed between 1970 and 1990, the

most influential variable in that dynamic is racial residential segregation, contrary to Wilson's argument of the importance of economy restructuring.

Hypothesis 5A: The proportional distribution of economic infrastructure between the MSA and its central city has not changed between 1970 and 1990.

The paired sample *t*-test found that the 1970 and 1990 proportional distribution of economic infrastructure between the MSA and its central city has undergone a statistically significant change ($P<.01$) (See Table B.23). Mean central city manufacturing employment has decreased over the last 20 years in numbers of individuals employed in manufacturing and in the proportion of MSA manufacturing employment located in the central city, Figure 4.1. Though the central city did experience

Figure 4.1 Central City Economic Infrastructure, 1970 and 1990



	Manufacturing	Professional Services	Services	Transportation	Governmental
1970 Central City Means	69,095	78,022	69,787	20,490	17,326
1990 Central City Means	61,287	112,724	85,045	16,477	16,724

employment increases in the Professional Services and Services sectors, its proportion of MSA employment in these activities decreased.

These findings are consistent with Kasarda (1989, 1995) and provide support for Kasarda's (1989: 28) conclusion that American cities are transforming "from centers of production and distribution of goods to centers of administration, finance, and information exchange." More importantly, these findings support Wilson's (1987) assertions that there is a shift in the central city from the production of goods towards service-oriented production and in the spatial distribution of employment opportunities between the MSA and its central city.

Hypothesis 5B: The proportional distribution of skilled labor force between the MSA and its central city has not changed between 1970 and 1990.

The 1970 and 1990 proportional distribution of the skilled labor force, as measured by the educational attainment of the employed labor force, between the MSA and its central city was compared through the use of a paired sample *t*-test. The paired sample *t*-test concluded that a statistically significant change ($P<.01$) in the proportional distribution of the skilled labor force between the MSA and its central city has occurred between 1970 and 1990 (See Table B.24). Although the mean central city employment of college graduates increased over the last 20 years, the proportion of MSA's college graduates employed in the central city decreased by almost 8%, Figure 4.2. Employment of central city workers with less than a High School education suffered a decline in both the number of central city workers and in the MSA proportion of workers employed with less than a High School education.

Figure 4.2 Mean Educational Attainment of Employed Central City workers, 1970 and 1990

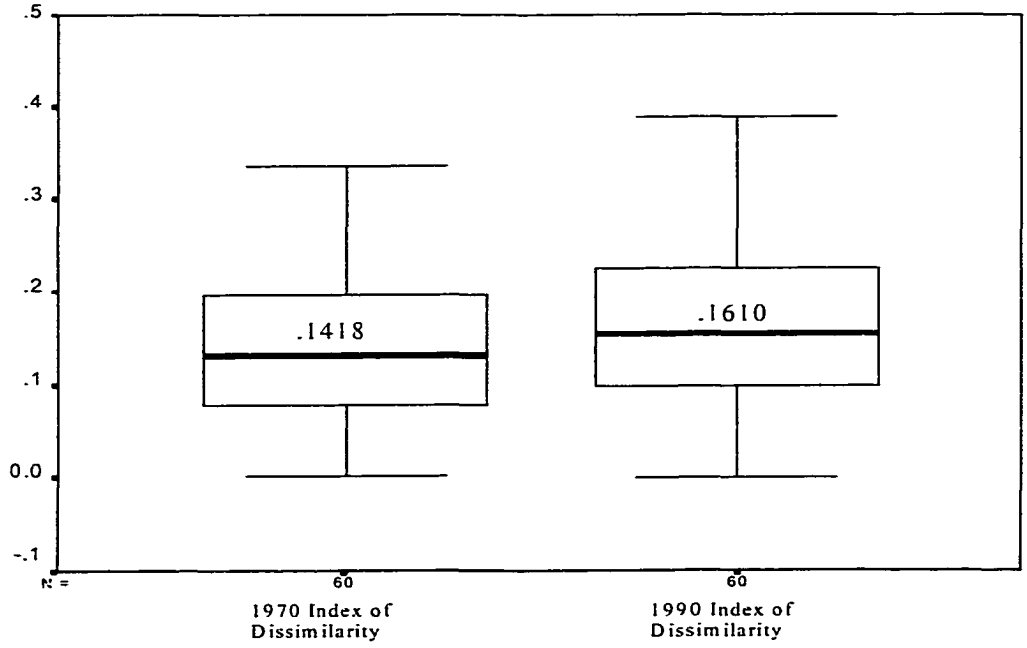
	Less than High School	High School Graduate	Less than College	College Graduate
1970 Central City Mean	90,774	87,324	39,096	37,526
1990 Central City Mean	40,378	81,846	89,127	80,906

These findings support Wilson's (1987, 1996) and others authors (Kasarda, 1985,1989, 1995; Harrison and Bluestone, 1988; Howell and Wolf, 1991; Holzer and Vroman, 1992) assertion that as employment opportunities shift from goods-producing to information-processing and services, an increase in demand for workers with greater educational levels/skills would occur. Wilson's (1987) contends this shift results in individuals without the requisite educational/skills requirements being unable to obtain employment and ultimately fall into poverty.

Hypothesis 5C: Changes have not occurred in the Index of Dissimilarity between the MSA and its central city.

A statistically significant change ($P<.01$) has occurred in the Index of Dissimilarity between the MSA and its central city (see Table B.25). The Index of Dissimilarity between the MSA and its central city increased from .1418 (1970) to .1610 (1990), Figure 4.3. This finding is consistent with the findings by several authors (Massey, et al, 1994; Newburger, 1999; Fegin, 1999) that suggests that racially segregated housing may still exist. Though this finding is inconsistent with Farley and Frey's findings (1992; 1993) which suggest that a modest decline in segregation is occurring, the differing results may be due to their assessing residential segregation by the extent blacks and whites are evenly distributed between blocks within a city rather than by the extent that blacks and white are evenly distributed between the MSA and its central city.

Fig 4.3 1970 and 1990 Index of Dissimilarity



Hypothesis 5D: Changes in the proportion of metropolitan area poverty located in its central city has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.

Conceptually, the change in the proportion of MSA poverty residing in its central city may be a function of the change in the proportion of MSA economic infrastructure, MSA skilled labor force residing in the central city and change in the level of racial residential segregation that exists between the MSA and its central city. The analysis indicates that a statistically significant relationship ($F<.01$) does exist between change in the proportion of MSA poverty residing in its central city and changes in the hypothesis independent variables, Table 4.7. The Poverty Change Model without the Index of Dissimilarity explains over 40% ($\overline{R^2}$) of the observed variability in the change in the proportion of metropolitan area poverty located in its central city. However, the inclusion of the Index

Table 4.7 Change in Central City Poverty Model Analysis Results

	With Index of Dissimilarity			Without Index of Dissimilarity		
Variables	**Standardized Beta Coefficients**	***t***	**Sig.**	**Standardized Beta Coefficients**	***t***	***Sig.***
(Constant)		1.891	.064		2.420	.019
Manufacturing Change.	.167	.622	.537	-.030	-.101	.920
Professional Service Change	-1.276	-5.976	**.000**	-1.059	-4.583	**.000**
Service Change	.959	2.618	**.012**	.993	2.414	**.019**
Transportation Change	1.158	3.857	**.000**	.768	2.421	**.019**
Governmental Change	-.715	-3.303	**.002**	-.349	-1.601	.115
Less than High School Change	.333	2.830	**.007**	.252	1.940	.058
College Graduate Change	-.172	-1.538	.130	-.111	-.888	.378
Index of Dissimilarity Change	.412	3.822	**.000**			
	$\overline{R^2}$ = .544 F = 9.804, Sig. .000			$\overline{R^2}$ = .425 F = 7.227, Sig. .000		

a. Dependent Variable: Proportional Change in Poverty, 1970 - 1990
Note: The results of the Goldfeld-Quandt Test, Table B.29 indicates that we can attribute a statistically significant F-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

of Dissimilarity variable improves the Poverty Change model's ability to explain the variation in the change in the proportion of metropolitan area poverty located in the central city ($\overline{R^2}$ = .54). The Manufacturing Change variable is not statistically significant in either poverty change model although the remaining economic infrastructure variables, with the exception of Governmental Change, are statistically significant in both models. Of the educational change variables, only Less than High School Change is significant and then only in the Poverty Change Model with Index of Dissimilarity.

Though both Poverty Change Models are statistically significant, the addition of the Index of Dissimilarity change variable added to the explanatory value of the model. Additionally, the Index of Dissimilarity change variable in the Poverty Change model, Table 4.7, is statistically significant which, when coupled with its standardized beta coefficient's strong contribution, suggests that racism significantly contributes to the concentration of poverty within a metropolitan area central city. This suggestion is supported by the arguments of several authors (Massey, 1990, 1995; Massey, Gross and Shibuya, 1994; Feagin, 1999, Orfield, 1992) that racism is responsible for geographically concentrated poverty in the MSA central city. This finding refutes Wilson's argument that economic restructuring is more responsible for the increasing concentration of poverty within the metropolitan area central city than racism and suggests that racism is as culpable as economic restructuring for the increasing level of poverty within the central city.

Hypothesis 6: Changes in central city Income Inequality has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.

The first step is to test the underlying hypothesis that a change has not occurred in the income inequality of the central city. A paired sample *t*-test determines that a statistically significant change ($P<.01$) in central city income inequality occurred between 1970 and 1990 (See Table B.34). However, the hypothesis relationship between the changes in the income inequality of the central city and the change in the proportional distribution of the economic sector employment, skilled labor force, and change in the Index of Dissimilarity is unsupportable. The analysis indicates that a statistically significant relationship ($F>.05$) does not exist between change in the central city Income Inequality and changes in the hypothesis independent variables, Table 4.8. The Model only

Table 4.8 Change in Central City Income Inequality Model Analysis Results

Variables	Standardized Beta Coefficients	*t*	Sig.
(Constant)		5.669	.000
Manufacturing	-.349	-.913	.365
Professional Service	-.127	-.418	.678
Service	-.841	-1.616	.112
Transportation	.563	1.320	.193
Governmental	.594	1.933	.059
Less than High School	-.057	-.339	.736
College Graduate	-.028	-.175	.862
Index of Dissimilarity	-.097	-.631	.531
	$\overline{R^2} = .080$ $F = 1.645$, Sig. .135		

a. Dependent Variable: Income Inequality Change, 1970 - 1990
Note: The results of the Goldfeld-Quandt Test, Table B.38 indicates that we can attribute a statistically significant *F*-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

explains 8% ($\overline{R^2}$) of the observed variability in the change in the proportion of metropolitan area poverty located in its central city. Additionally, none of the independent variables are of statistical significance, Table 4.8. Thus, this study is unable to demonstrate a strong relationship between changes in income inequality and changes in labor market conditions, education, and race as suggested by several authors (Blank and Card, 1993; Cloutier, 1997; Caputo 1995).

Hypothesis 7: Changes in central city Median Household Income has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.

The first step is to the test the underlying hypothesis that a change has not occurred in the median household income of the central city. Not unexpectedly, the paired sample *t*-test determines that a statistically significant change ($P<.01$) in central city median household income occurred between 1970 and 1990 because median household income increased by over $18,000 (See Table B.39). A more reasonable approach to determine if a change has not occurred in the central city median household income is to adjust the 1970 and 1990 central city median household income to 1998 dollars (SOCDS, 2000). When the adjusted 1970 central city median household income is compared to the adjusted 1990 median household income a difference of only $2,591 exists (See Table B.39). Yet, even this small difference is large enough for the paired sample *t*-test to conclude that a statistically significant change ($P<.01$) in central city median household income occurred between 1970 and 1990 (See Table B.39).

The hypothesis relationship holds that changes in the median household income of the central city is a function of change in the proportional distribution of the economic sector employment, skilled labor force, and change in the Index of Dissimilarity between the MSA and its central city. Two models are developed, one model using unadjusted 1970 and 1990 median household income and the other model using the adjusted 1970 and 1990 median household income, to determine whether the changes in the independent variables influences changes in median household income.

The analysis indicates that a statistically significant relationship ($F<.01$) does exist between change in the central city median household income and changes in the hypothesis independent variables for both the unadjusted and adjusted models, Table 4.9. Although the models only explain 29% of the observed variability of the change in

Table 4.9 Change in Central City Median Household Income Model Analysis Results

	Median Household Income Change, 1970 - 1990			Adjusted Median Household Income Change, 1970-1990		
Variables	Standardized Beta Coefficients	*t*	Sig.	Standardized Beta Coefficients	*t*	Sig.
(Constant)		25.943	.000		5.391	.000
Manufacturing	.471	1.405	.166	.360	1.128	.265
Professional Service	.090	.340	.735	-.477	-1.886	.065
Service	.199	.436	.665	.623	1.434	.158
Transportation	-.046	-.122	.903	-.066	-.184	.855
Governmental	-.240	-.889	.378	-.029	-.114	.910
Less than High School	.036	.245	.808	-.106	-.763	.449
College Graduate	.161	1.156	.253	.161	1.209	.232
Index of Dissimilarity	-.272	-2.024	**.048**	-.301	-2.349	**.023**
	$\overline{R^2}$ = .293 F = 4.060, Sig. .000			$\overline{R^2}$ = .359 F = 5.128, Sig. .000		

a. Dependent Variable: Median Household Income Change between 1970 and 1990
b. Dependent Variable: Adjusted Median Household Income Change between 1970 and 1990
Note: The results of the Goldfeld-Quandt Test, Table B.43 indicates that we can attribute a statistically significant *F*-ratio to unequal means rather than to unequal variances (Kachigan, 1986).

central city median household income and only one of the independent variables (Index of Dissimilarity) is statistically significant, it does not diminish the significance of the relationship since the focus is on whether the group of independent variables is significant, not the individual variables in that group (Pindyck and Rubinfeld, 1991). As a result, this analysis provides limited support for the hypothesis that change in central city median household income is a function of changes in the hypothesized variables as suggested by previous studies (Blank and Card, 1993; Cloutier, 1997; Caputo 1995).

Hypothesis 8: The 1970 – 1990 changes in the proportion of metropolitan area poverty located in the central city experienced by concentric and non-concentric central city are not influenced similarly by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity.

The sixty cities used in this study were classified as either concentric or non-concentric cities based on Hill's, et al, (1998) classification which was based on hierarchical cluster analysis and discriminant analysis (See Appendix A). Analysis of concentric and non-concentric central city descriptive statistics reveals that concentric cities appear to have experienced a greater loss in the proportion of an MSA's economic infrastructure located in the MSA's central city than nonconcentric cities, Table 4.10. It also appears that concentric cities experienced a greater loss in the proportion of an MSA College Graduate and Less than High School Graduate employed in the central cities. The nonconcentric cities experienced a greater increase in the Index of Dissimilarity than

Table 4.10 1970 – 1990 Descriptive Statistics for Concentric and Non-concentric Cities Changes

Variables	City Type	Mean Change
Manufacturing	Concentric	-6.3%
	NonConcentric	-3.8%
Professional Service	Concentric	-.6.3%
	NonConcentric	-4.8%
Services	Concentric	-.6.6%
	NonConcentric	-.4.1%
Transportation	Concentric	-.5.7%
	NonConcentric	-.4.6%
Governmental	Concentric	-.5.8%
	NonConcentric	-.4.4%
Less Than High School	Concentric	-8.0%
	NonConcentric	-6.3%
College Graduate	Concentric	-10%
	NonConcentric	-6.3%
Index of Dissimilarity	Concentric	.017
	NonConcentric	.021
Poverty	Concentric	-8.4%
	NonConcentric	.03%

the concentric cities, and growth in the proportion of MSA poverty located in the central city while the concentric city proportion of MSA poverty decreased.

An independent sample *t*-Test determined that a statistically significant difference ($P<.05$) exists between concentric and nonconcentic cities with respect to changes in the proportion of MSA manufacturing and services employment located in the central city (See Table B.45). However, a statistically significant difference ($P>.05$) does not exist between concentric and non-concentric cities with respect to the other variables of interest (See Table B.45). Though the *t*-test has been shown to be very robust when dealing with small samples in the sense that violation of normality and equality of variance do not greatly affect the accuracy of the probability statement resulting from the

test (Kachigan, 1982), the Mann-Whitney test, the nonparametric alternative to the independent sample *t*-test (Norusis, 1999), will also be used to test the null hypothesis that the means of the two groups are equal since the concentric city sample is less than 30. The results of the Mann-Whitney test are identical to the independent sample *t*-test (See Table B.46).

To assess whether the 1970 – 1990 changes in the proportion of metropolitan area poverty located in the central city experienced by concentric and non-concentric central cities are not influenced similarly by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity, we test the Null hypothesis that concentric and non-concentric cities' poverty change model sets of coefficients are equal.

The first step is to estimate each of the implied models, Table 4.11 and Table 4.12 (Concentric, Non-concentric, and Concentric-Non-Concentric, which include data from

Table 4.11 Concentric / Non-concentric Poverty Models ANOVA [a] Comparisons

	Model	Sum of Square	Df	Mean Squares	F	Sig
Concentrc/Non-concentric	Regression	5.125E-02	8	6.407E-03	9.804	.000[b]
	Residual	3.333E-02	51	6.535E-04		
	Total	8.458E-02	59			
Concentric	Regression	7.864E-03	8	9.830E-04	2.776	.045[c]
	Residual	4.958E-03	14	3.541E-04		
	Total	1.282E-02	22			
Non-concentric[d]	Regression	4.745E-02	8	5.932E-03	7.396	.000[d]
	Residual	2.246E-02	28	8.020E-04		
	Total	6.991E-02	36			

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Discrimination Change
b. Dependent Variable: Poverty Change, 1970-1990
c. Dependent Variable: Concentric Poverty Change, 1970-1990
d. Dependent Variable: Non-concentric Poverty Change, 1970-1990

Table 4.12 Poverty Change Model Analysis Results

	Poverty Change, 1970 – 1990			Concentric Poverty Change, 1970-1990			Non-Concentric Poverty Change, 1970 –1990		
Variables	**Std. Beta Coefficients**	***t***	**Sig.**	**Std. Beta Coefficients**	***t***	**Sig.**	**Std Beta Coefficients**	***t***	Sig.
(Constant)		1.891	.064		1.171	.261		1.476	.151
Manufacturing Change	.167	.622	.537	.347	.853	.408	.074	.192	.849
Professional Service Change	-1.276	-5.976	**.000**	-.431	-.745	.469	-1.495	-5.703	**.000**
Service Change	.959	2.618	**.012**	.148	.273	.789	1.400	2.504	**.018**
Transportation Change	1.158	3.857	**.000**	.362	.864	.402	1.227	2.389	**.024**
Governmental Change	-.715	-3.303	**.002**	.153	.337	.741	-1.014	-3.526	**.001**
Less than High School Change	.333	2.830	**.007**	.211	.901	.383	.188	.985	.333
College Graduate Change	-.172	-1.538	.130	-.429	-2.013	.064	.061	.374	.712
Index of Dissimilarity Change	.412	3.822	**.000**	.698	2.781	**.015**	.339	2.118	**.043**
	$\overline{R^2}$ = .544 *F* = 9.804, Sig. .000			$\overline{R^2}$ = .392 *F* = 2.776, Sig. .045			$\overline{R^2}$ = .587 *F* = 7.396. Sig. .000		

a. Dependent Variable: Poverty Change, 1970-1990
b. Dependent Variable: Concentric Poverty Change, 1970-1990
c. Dependent Variable: Non-Concentric Poverty Change, 1970-1990

both Concentric and Non-concentric cities). An *F*-test[1] then tests the Null hypothesis that the concentric and non-concentric poverty change model sets of coefficients are equal.

The analysis reveals that the *F* statistic (3.88) is greater than the critical value of the *F* distribution ($F_{3,54,.05}$ = 2..28); therefore, we reject the null hypothesis which implies the concentric and non-concentric poverty change model sets of coefficients are not equal. Rejection of the Null hypothesis implies that separate regressions are required for concentric and non-concentric cities. Thus, the influence exerted by the changes in the proportional distribution of economic infrastructure, skilled labor force, and Index of

Dissimilarity (racial residential segregation) over changes in the proportional distribution of poverty between an MSA and its central city differs between concentric and non-concentric central city.

The Poverty Change Models are statistically significant ($F<.05$) and explain over 39% ($\overline{R^2}$) of the observed variability in the changes in the proportional distribution of metropolitan area poverty experienced by concentric and non-concentric cities, Table 4.12.. Interestingly, the non-concentric model ($\overline{R^2}$ = 58.7%) explains a greater proportion of the observed variability than the concentric model (39.2%). The economic infrastructure change variables, with the exception of manufacturing change, are statistically significant in the Poverty and the Non-concentric Poverty change models. The Concentric Poverty Changes model has no significant variables with the exception of the Index of Dissimilarity which is statistically significant in all three-poverty change models. The skilled labor force variables are insignificant in the concentric and non-concentric poverty change models with only the Less than High School Change variable being significant in the Poverty Change model. Even though there is a lack of significant variables in the concentric model, it is not an unlikely occurrence even with the overall *F*-Test results being significant. The purpose of the *F*-test is to test whether the overall model is statistically significant, not if individual variables in that model are statistically significant (Pindyck and Rubinfeld, 1991).

These results suggest that changes in the proportional distribution economic infrastructure and skills labor force coupled with changes in the Index of Dissimilarity provides an explanation for the changes in the proportional distribution of poverty between the metropolitan area and its central city even though their influences differ

between concentric and non-concentric cities. These results provide limited support for Wilson's (1987) and others' (Teitz and Chapple, 1998; Kasarda, 1995, 1990; Harrison and Bluestone, 1988) contention that economic restructuring influences the distribution of metropolitan area poverty between the metropolitan area and its central city. However, the results fail to support the importance of skills mismatch in influencing the distribution of metropolitan area poverty. More importantly, these results refute Wilson's contention that racism is not an influential factor in the distribution of metropolitan area poverty between the metropolitan area and its central city. Instead, these results provide support for the argument that racism is an important factor in the distribution of metropolitan area poverty (Massey, 1990, 1994; Massey, Gross and Shibuya, 1994; Feagin, 1999, Orfield, 1992).

Hypothesis 9: The proportion of metropolitan area poverty located in its central city has not changed between 1970 and 1990.

The paired sample *t*-test (two-tail) compared the 1970 (.3312) and 1990 (.3298) proportion of metropolitan area poverty located in its central city and concluded that a significant difference (P=.778) does not exist between the two samples (See Table B.50). In other words, the proportion of MSA poverty located in its central city has remained virtually unchanged over the last 20 years, Figure 4.4, despite increases in both the central city and the MSA poverty rates, Figure 4.5.

Fig 4.4 1970 and 1990 Central City Proportion of MSA Poverty

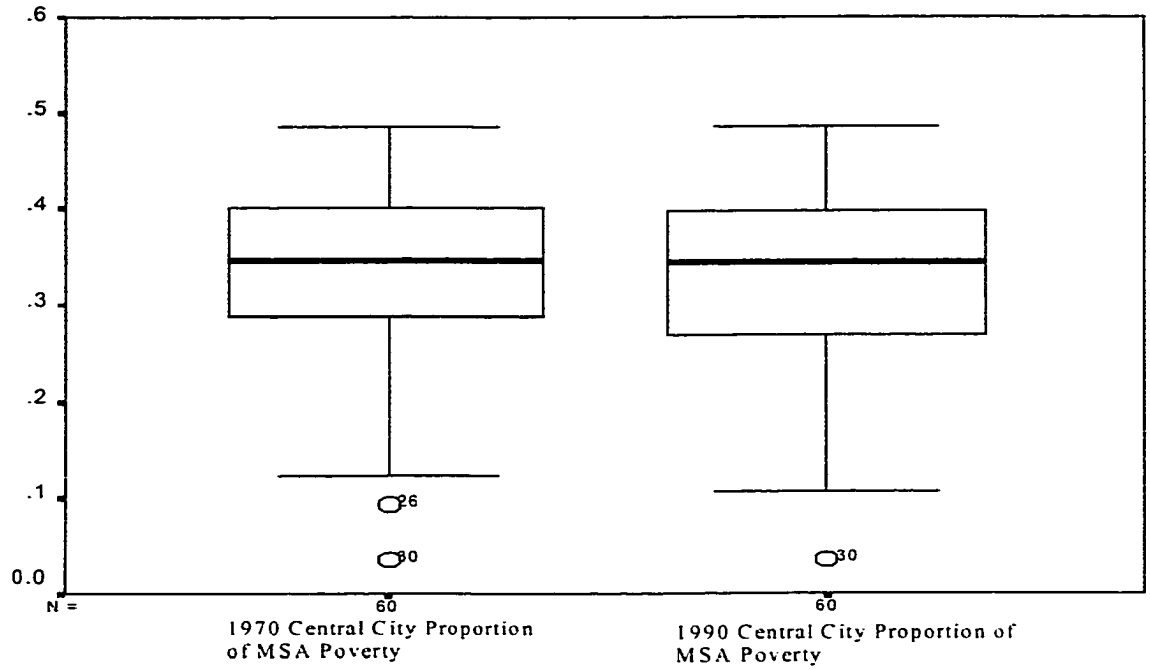
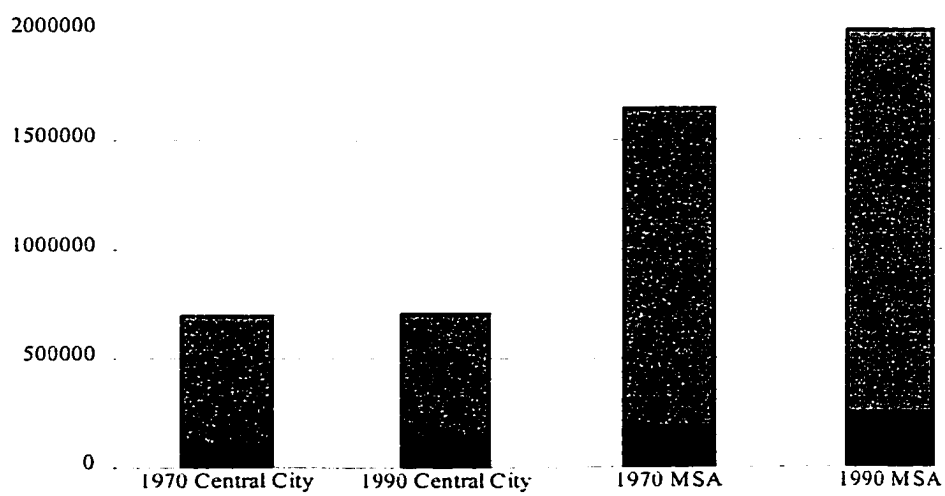


Figure 4.5 Mean Central City – MSA Mean Population and Poverty Rates



	1970 Central City	1990 Central City	1970 MSA	1990 MSA
Population	593,005	570,009	1,465,819	1,754,737
Persons in Poverty	101,688	135,077	179,396	243,599
Poverty Percentage	14.67%	18.89%	12.15%	12.44%

Though this study's findings may appear to be inconsistent with previous research (Danziger and Gottschalk, 1987; Madden, 1996; Jargowsky, 1997) which found that metropolitan area poverty is becoming increasingly concentrated within the metropolitan area central city, the differing result is due to the previous studies' focus on quantitative or percentage change in poverty rather than changes in the proportional distribution of poverty between the metropolitan area and its central city. For example, Danziger and Gottschalrk (1987), and Jargowsky (1997) concluded that metropolitan area poverty was becoming increasingly concentrated because of the increase in the number of central city residents residing in high poverty neighborhoods and in the number of neighborhoods classified as "high poverty neighborhoods." These changes could have occurred as a result of individual and family in poverty having fewer residential choices in the central city, not as a result of increasing number of metropolitan area individuals and family residing in the central city. Madden's (1996) conclusion was based on a comparison of the central city poverty rate with the metropolitan statistical area poverty rate, a comparison which compares poverty rates, not the proportional distribution of individuals and families in poverty between the central city and its metropolitan area.

However, this study examined changes in the proportion of metropolitan area poverty located in the central city, an analysis which measures relative changes rather than absolute changes in the distribution of poverty between the central city and its metropolitan area. This analysis concludes that, despite the increasing numbers of persons in poverty residing in the central city and the increasing central city poverty rates, the proportion of metropolitan area poverty located in the metropolitan area central city has remained virtually unchanged.

J. Summary

The findings of this study are summarized in Table 4.13. In sum, the descriptive statistics identify that a mean decrease in Manufacturing employment and an increase in Professional Services and Services employment within the metropolitan area central city has occurred. Additionally, a mean decrease in the proportion of MSA workers employed in the central city with less than a high school education and college graduates is observed even though the mean number of employed central city workers with a college degree rose between 1970 and 1990. These findings are consistent with Wilson's hypothesis (1987) and Kasarda's (1989) finding.

The analysis of the hypothesis relationship that the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation between the MSA and its central city does not influence the proportion of metropolitan area poverty located in its central city indicates that a linear relationship does exists. However, contrary to Wilson's assertion of the significance of economic restructuring, racial residential segregation appears to be a significant factor seconded by the proportional distribution of the less than high school labor force in determining the proportion of metropolitan area poverty located in its central city. Interestingly, even though the influence exerted by these variables over the proportional distribution of poverty between the MSA and its central city significantly changed between 1970 and 1990, the same variables, Less than High School and the Index of Dissimilarity, remained statistically significant. However, the strong influence of racism, the Index of Dissimilarity, over the distribution of metropolitan area poverty as demonstrated by its standardized beta coefficient is contrary to Wilson's argument that economic

Table 4.13 Analysis Results

Hypothesis	Hypothesis Statement	Findings
1. The proportion of metropolitan area poverty located in its central city is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$CP = \alpha + \beta_1 M + \beta_2 PS + \beta_3 S + \beta_4 T + \beta_5 G + \beta_6 LTHS + \beta_7 CG + \beta_8 CID$	Found that a linear relationship exists between the proportion of metropolitan area poverty located in its central city and the proportion of metropolitan area economic infrastructure, skilled labor force located in the central city, and the level of racial residential segregation (Index of Dissimilarity) which exists between the metropolitan area and its central city. Found that the Index of Dissimilarity variable (racial residential segregation), contrary to Wilson's hypothesis, significantly added to the explanatory ability of the model.
2. Central city income inequality is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$CII = \alpha + \beta_1 M + \beta_2 PS + \beta_3 S + \beta_4 T + \beta_5 G + \beta_6 LTHS + \beta_7 CG + \beta_8 CID$	Analysis fails to provide support for the hypothesis that income inequality is a function of the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between the MSA and its central city.
3. Central city median household income is not influenced by the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$CMHI = \alpha + \beta_1 M + \beta_2 PS + \beta_3 S + \beta_4 T + \beta_5 G + \beta_6 LTHS + \beta_7 CG + \beta_8 CID$	Found limited support for the hypothesis that median household income is a function of the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between the MSA and its central city.
4 The proportion of metropolitan area poverty located in its central city is not influenced differently by 1970 and 1990 proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city.	$F_{k,N+M-2k} = \dfrac{(ESS_r - ESS_{ur})/k}{ESS_{ur}/(NL+M-2k)}$	Found that the proportional distribution of economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) between the MSA and its central city's influence over the proportion of metropolitan area poverty located in its central city does differ between 1970 and 1990. The most significant variables are Less than High School and the Index of Dissimilarity.

Table 4.13 Analysis Results, Continued

Hypothesis	Hypothesis Statement	Findings
5A. The proportional distribution of economic infrastructure between the MSA and its central city has not changed between 1970 and 1990.	$H_0 : EIS_{1970} - EIS_{1990} = 0$ $H_A : EIS_{1970} - EIS_{1990} \neq 0$	Fond that significant changes have occurred in the proportional distribution of economic infrastructure between the MSA and its central city
5B. The proportional distribution of skilled labor force between the MSA and its central city has not changed between 1970 and 1990.	$H_0 : EdEpl_{1970} - EdEpl_{1990} = 0$ $H_A : EdEpl_{1970} - EdEpl_{1990} \neq 0$	Found that significant changes have occurred in the proportional distribution of the skilled labor force between the MSA and its central city.
5C. The Index of Dissimilarity between the MSA and its central city has not changed between 1970 and 1990.	$H_0 : ID_{1970} - ID_{1990} = 0$ $H_A : ID_{1970} - ID_{1990} \neq 0$	Found that significant changes have occurred in the Index of Dissimilarity between the MSA and its central city.
5D. Changes in the proportion of metropolitan area poverty located in its central city has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.	$CCP = \alpha + ß_1CM + ß_2CPS + ß_3CS + ß_4CT + ß_5CG + ß_6CLTHS + ß_7CCG + ß_8CCID$	Found that changes in the proportion of metropolitan area poverty located in its central city has been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city. Found that the manufacturing change variable is not statistically significant though the Professional Service Change and Service Change variables are statistically significant. Additionally, the Index of Dissimilarity Change variable is statistically significant.
6. Changes in central city Income Inequality has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.	$CCFINQ = \alpha + ß_1CM + ß_2CPS + ß_3CS + ß_4CT + ß_5CG + ß_6CLTHS + ß_7CCG + ß_8CCID$	Analysis fail to provide support for the hypothesis that change in income inequality is a function of changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between the MSA and its central city.

Table 4.13 Analysis Results, Continued

Hypothesis	Hypothesis Statement	Findings
7. Changes in central city Median Household Income has not been influenced by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between an MSA and its central city.	$CMHIC = \propto + ß_1CM + ß_2CPS + ß_3CS + ß_4CT + ß_5CG + ß_6CLTHS + ß_7CCG + ß_8CCID$	Found limited support for the hypothesis that change in median household income is a function of changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity between the MSA and its central city.
8. The 1970 - 1990 changes in the proportion of metropolitan area poverty located in the central city experienced by concentric and non-concentric central city are not influenced similarly by changes in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity.	$H_O : U_{cc} - U_{ncc} = 0$ $H_A : U_{cc} - U_{ncc} \neq 0$ $F_{k,N+M-2k} = \frac{(ESS_r - ESS_{ur})/k}{ESS_{ur}/(NL+M-2k)}$	Found that a statistically significant difference ($P<.05$) exists between concentric and non-concentric cities with respect to the change in the proportion of MSA manufacturing and services employment located in the central city. Found that the influence exerted by the change in the proportional distribution of economic infrastructure, skilled labor force, and changes in the Index of Dissimilarity over the proportional distribution of poverty between an MSA does differ between concentric and non-concentric cities.
9. The proportion of metropolitan area poverty located in its central city has not changed between 1970 and 1990.	$H_O : CCPov_{1970} - CCPov_{1990} = 0$ $H_A : CCPov_{1970} - CCPov_{1990} \neq 0$	Found that statistically significant changes ($P=.778$) have not occurred in the proportion of metropolitan area poverty located in its central city between 1970 and 1990.

infrastructure exerts the greatest influence over the distribution of metropolitan area poverty.

Though several authors (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995) have suggested that a relationship exists between income inequality and labor market conditions, education, and race, this study fails to reach a similar conclusion. However, this study did find limited support for the hypothesis relation that central city median household income is a function of the proportion of metropolitan area economic infrastructure, skilled labor force, and the level of racial residential segregation (Index of Dissimilarity) which exists between the metropolitan area and its central city as suggested by several authors (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995).

The analysis of whether changes have occurred in the proportional distribution of economic infrastructure, skilled labor force, and in the Index of Dissimilarity between the MSA and its central city between 1970 and 1990 reveals that a statistically significant change in the distribution of these variables has occurred. Further analysis indicates that a significant relationship does exist between change in the proportion of MSA poverty residing in its central city and changes in these independent variables. Though contrary to Wilson's assertion of the influence of changes in manufacturing employment on poverty, the Manufacturing Change variable is not statistically significant though the Professional Service Change and Service Change variable are statistically significant. These results are only partially consistent with Wilson's (1987) hypothesis because of the significance that the presence of the Index of Dissimilarity change variable has and suggests that racism significantly influences the proportion of metropolitan area poverty located within a metropolitan area central city. This suggestion is supported by the arguments of several

authors (Massey, 1990, 1995; Massey, Gross and Shibuya, 1994; Feagin, 1999, Orfield, 1992) that racism is responsible for geographically concentrated poverty in the MSA central city.

Though several authors (Blank and Card, 1993; Cloutier, 1997; Caputo 1995) have suggested that a relationship exists between changes in the income inequality of the central city and the change in the proportional distribution of the economic sector employment, skilled labor force, and change in the Index of Dissimilarity, this study is unable to demonstrate the existence of a strong relationship between these variables. However, these same authors suggest that a similar relationship exists between changes in the proportional distribution of economic infrastructure, skilled labor force, and change in the Index of Dissimilarity between the MSA and its central city and changes in central city median household income, a hypothesis this study provides limited support for.

This study found that changes in the proportional distribution of a metropolitan area's economic infrastructure, skilled labor force, and change in the Index of Dissimilarity between the metropolitan area and its central city occurred at differing rates depending upon whether the metropolitan area central city was concentric or non-concentric. As a result, non-concentric cities experienced a greater increase in the Index of Dissimilarity than the concentric cities and growth in the proportion of MSA poverty located in the central city, while the concentric city proportion of MSA poverty decreased.

These results suggest that changes in the distribution of economic infrastructure and skills labor force coupled with racial residential segregation provides an explanation for the proportion of metropolitan area poverty located in its central city even though those influences differ between concentric and non-concentric cities. These results fail to

provide support for Wilson's (1987) and others' (Teitz and Chapple, 1998; Kasarda, 1995, 1990; Harrison and Bluestone, 1988) contention that economic restructuring and skills mismatch provides an explanation for the increasing concentration of metropolitan area poverty in its central city. Additionally, these results refute Wilson's contention that racism does not significantly influence the proportion of metropolitan area poverty located in its central city which others argue provides an explanation for the increasing concentration of metropolitan area poverty in its central city (Massey, 1990, 1994; Massey, Gross and Shibuya, 1994; Feagin, 1999, Orfield, 1992).

The results of this study fail to provide support for Wilson's (1987) and others' (Teitz and Chapple, 1998; Kasarda, 1995, 1990; Harrison and Bluestone, 1988) contention that economic restructuring and skills mismatch provides an explanation for the increasing concentration of metropolitan area poverty in its central city because this study found that the proportion of metropolitan area poverty located in its central city has remained virtually unchanged over the last 20 years despite increases in both the central city and the MSA poverty rates. Though this finding may appear to be inconsistent with previous research, the differing result is due to the previous studies' focus on quantitative or percentage change in poverty rather than changes in the proportional distribution of poverty between the metropolitan area and its central city. However, this study examined changes in the proportion of metropolitan area poverty located in the central city and found that despite the increasing numbers of person in poverty residing in the central city and the increasing central city poverty rates, the proportion of metropolitan area poverty located in the metropolitan area central city has remained virtually unchanged.

Notes:

[1] For a full discussion of this *F*-test, refer to pages 115 –116 in. *Econometric Models and Economic Forecast, 3ed.* Pindyck Robert S. and Daniel L. Rubinfeld. 1991MacGraw-Hill Inc. New York

CHAPTER 5

DISCUSSION

Overview

This study examined Wilson's hypothesis that economic restructuring accompanied by spatial redistribution of employment opportunities coupled with rising skills requirements for employment provide an explanation for the increasing concentration of metropolitan area poverty in its central city. This study also assesses the influence that racism, represented by racial residential segregation (Index of Dissimilarity), may have on the distribution of metropolitan poverty (Massey 1990, 1994; Massey, Gross and Shibuya, 1994; Feagin, 1999, Orfield, 1992). Additionally, this study will expand Wilson's hypothesis by examining the influence that these variables (economic infrastructure, skills mismatch, and racial residential segregation) have on central city income inequality and median household income, a relationship suggested by several authors (Blank and Card, 1993;Cloutier, 1997; Caputo, 1995).

This study suggests that changes in racial residential segregation is as culpable as changes in economic structure on influencing changes in the distribution of metropolitan area poverty contrary to Wilson's hypothesis that economic restructuring is more responsible for the distribution of poverty than racism. The influence of racial residential segregation extends to explaining the distribution of poverty between the central city and its metropolitan area. Analysis suggests that racial residential segregation followed by the proportional distribution of a skilled labor force exerts greater influence on the distribution of metropolitan area poverty between the central city and its metropolitan

area than the proportional distribution of economic infrastructure contrary to Wilson's hypothesis. This study fails to find evidence to support the suggestion (Blank and Card, 1993;Cloutier, 1997; Caputo, 1995) that a relationship exists between the distribution of economic infrastructure, skills labor force, and racial residential segregation and central city income inequality. However, the study did find evidence that a limited relationship may exist between these variables and central city median household income.

Discussion

In 1987, William J. Wilson observed that:

> [U]rban minorities have been particularly vulnerable to structural economic changes, such as the shift from good-producing to service-producing industries, the increasing polarization of the labor market into high-wage and low-wage sectors, technological innovations, and the relocation of manufacturing industries out of the central cities. (Wilson, 1987:39)

His observations have several implications examined by this study. The first implication implies that the concentration of metropolitan area poverty in their central city is the result of two profound structural changes that have occurred in the economy. The first profound structural change in the economy is the shift from the production of goods towards information-processing and service industries. This change is demonstrated by this study's findings that not only has the number of central city Manufacturing employment opportunities decreased, but that the number of Professional Service and Services employment opportunities has significantly increased during the last twenty years. The second structural change is the changing location of employment opportunities across regions, metropolitan-nonmetropolitan areas, and between cities and

their suburbs. This change is illustrated by this study's conclusion that while there has been significant growth in central city Professional Service and Service employment opportunities, the central city proportion of metropolitan area Professional Service and Service employment opportunities has decreased during the last twenty years. This finding is underlined by this study's observation that the central city proportion of metropolitan area employment opportunities across all economic infrastructure sectors has decreased over the last twenty years.

The second implication of Wilson's (1987) observation is that, as a result of changes in production technology and the functional transformation of cities from the production of goods toward information-processing and service industries, there has been an increased demand for high-skilled workers and a reduced demand for less-skilled workers. Though this study did not measure labor demand, it did find that over the last twenty years employment of individuals with less than a high school education has significantly decreased while employment of individuals with a college degree has significantly increased.

However, this study fails to find that the proportion of metropolitan area poverty has increased in its central city contrary to Wilson's (1987) argument that the consequence of economic restructuring and the suburbanization of employment opportunities coupled with rising skills requirements for employment have been the concentration of metropolitan area poverty in their central city. Analysis of the 1970 and 1990 distribution of metropolitan area poverty revealed that the proportion of metropolitan area poverty residing in its central city has remained virtually unchanged over the last 20 years despite

significant changes occurring in the distribution of economic infrastructure, skilled labor force, and in the Index of Dissimilarity.

Although, this study did not find an increase in the concentration of metropolitan area poverty in its central city, the analysis demonstrates that variation in the distribution of metropolitan area poverty between the metropolitan area and its central city can be explained by variations in the distribution of variables that Wilson (economic restructuring and skills mismatch) suggests provides an explanation for the increasing concentration of metropolitan area poverty in its central city. However, contrary to Wilson's argument against the significance of racism in the distribution of poverty, the regression models shows that racism, manifested as racial residential segregation and measured as the Index of Dissimilarity between the metropolitan area and its central city, significantly influences the distribution of metropolitan area poverty. The significance of racial residential segregation on the distribution of metropolitan area poverty is underscored by three findings. First, none of the economic infrastructure variables are significant in either the 1970 or 1990 Poverty Model with or without the Index of Dissimilarity, while the Index of Dissimilarity variable is significant in the 1970 and 1990 Poverty Model with Index of Dissimilarity. Second, the Poverty Change Model with the Index of Dissimilarity found that the economic infrastructure change variables, with the exception of Manufacturing Change, and the Index of Dissimilarity change variable are statistically significant. Third, the Index of Dissimilarity change variable is the only statistically significant variable in both the Concentric and Non-concentric change models. These findings suggest that racial residential segregation is as culpable as

economic infrastructure for the distribution of metropolitan area poverty between the metropolitan area and its central city.

While economic infrastructure, skills mismatch, and racial residential segregation may explain the distribution of metropolitan area poverty, others argue (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995) that they may also have a significant impact on income inequality and median household income experienced in the metropolitan area central city. However, this study found little support for these assumptions. Though a weak relationship was found between median household income and these variables, this study did not demonstrate a relationship between these variables and income inequality.

Policy Implications

The impact of poverty transcends geographic boundaries. Metropolitan areas and their central cities can no longer afford the illusion that they are a separate entity and can pursue separate policies suited to their self-interest. Clearly, a symbiotic relationship exists between the metropolitan area and its central city with respect to the distribution of metropolitan area poverty and the distribution of metropolitan area economic infrastructure, skilled labor force and the level of racial residential segregation, which exists between the metropolitan area and its central city. To inhibit the growth of poverty and its concentration, the central city and its metropolitan area must develop integrated economic development programs to attract and retain economic activities. These efforts should not only be concerned with the types of jobs that are added/retained but also the spatial location of those jobs within the metropolitan area and its central city. Geographic limitations may prevent the central city from regaining its status as the economic center

of its metropolitan area; it does not prevent the development of an integrated metropolitan area economic policy that fosters dispersion of economic activities that maximizes employment opportunities for all its residents to reduce poverty and its concentration.

Since firms have become prone to locate their activities wherever an advantage lies, the success of any metropolitan area's economic policy will rest on the education/skills of its labor force. The transition from a manufacturing-based to an information-technology based economy dictates that for a metropolitan area to effectively compete for jobs, its labor force must have the education/skills desired by firms. Even the traditional factory job requires higher levels of cognitive and interactive skills to operate technologically advanced machinery used in production. Today's factory workers must not only be able to turn a wrench but must be able to program the machinery used in production. Policy makers must ensure that the current educational system provides a standardized level of education/skills regardless of its location, central city or suburbs while attempting to identify and develop skill sets required by a technology dependent and driven society. Policy makers must provide a system to support life long education that allows the labor force the opportunity to continually upgrade skills or to acquire the skills demanded by a changing labor market. This may drive policy makers to abandon the traditional two-tier educational system which exists in metropolitan areas to multi-faceted (primary, secondary, vocational, technical, collegiate, skills-refresher) educational systems that meet the continually evolving needs of its customers. Responsibility for local school funding and administration may have to transfer from local school boards to a metropolitan or state agency to ensure that funding is based on resource needs rather than

local funding resources and to ensure a standardized level of education/skills development.

Amidst the need to develop effective metropolitan economic development plans and to develop an educated/skilled labor force, the specter of racism remains. Despite forty years of civil rights, affirmative action, and equal housing, this study found that racial residential segregation is still a significant factor in explaining the distribution of metropolitan area poverty between the metropolitan area and its central city. Policy makers, both governmental and private, need to review their current policies and programs to see if current public housing policies and home-mortgage policies tend to increase the concentration of poverty. Changes in Public housing policies could equably distribute public housing within the metropolitan area which, when coupled with home-mortgage policies designed to subsidize the dispersal of the poor could, decrease the concentration of the metropolitan area poverty.

Granted, these policy implications are not startling or cutting edge, they are however; the basic issues that must be successfully addressed so that individuals, cities, and metropolitan areas can succeed in today's environment and in the increasingly competitive environment of the future.

Future Research

This study suggests several avenues of future research. Investigation into why the proportion of metropolitan area poverty located in its central city appears to have remained virtually unchanged should be undertaken. One area of investigation is to determine if the proportion of metropolitan area poverty located in its central city has

changed during the last twenty years and has simply returned to its 1970 proportional distribution by 1990. Another area of investigation would be to classify central cities into separate groups of similar taxonomy (e.g., manufacturing or administrative) and to measure changes in the proportional distribution of metropolitan area poverty, economic infrastructure, skilled labor force, and in racial residential segregation between the metropolitan area and its central city to see if similar results occur. Other areas of investigation should address the adaptability of central city residents to the demands of the new labor market either through individual efforts or through public retraining programs. Investigation into whether or not current public housing policies (which may tend to increase the concentration of poverty) and home-mortgage policies (which could subsidize the dispersal of the poor) have promoted the concentration of the poverty into the central city is needed. The availability and location of public housing units on the distribution of metropolitan area poverty should be investigated. Further investigation into the influence of racial residential segregation on an individual's access to educational and employment opportunities and subsequent poverty status is needed. Another avenue of research should address the question of whether or not MSA poverty is becoming increasingly concentrated within its central city or if the proportion of MSA poverty residing in the central city is becoming increasingly concentrated within neighborhoods within the central city boundaries.

Conclusion

This study fails to find that the proportion of metropolitan area poverty has increased in its central city contrary to Wilson's (1987) argument that the consequence of economic

restructuring and the suburbanization of employment opportunities coupled with rising skills requirement for employment have been the concentration of metropolitan area poverty in their central city. Analysis of the 1970 and 1990 distribution of metropolitan area poverty revealed that the proportion of metropolitan area poverty residing in its central city has remained virtually unchanged over the last 20 years despite significant changes occurring in the distribution of economic infrastructure, skilled labor force, and in the Index of Dissimilarity. Analysis concludes that variation in the distribution of metropolitan area poverty is strongly influenced by variations in the distribution of variables that Wilson suggests provide an explanation for the increasing concentration of metropolitan area poverty in its central city. It also finds evidence, contrary to Wilson's argument, that racism manifested as racial residential segregation and measured as the Index of Dissimilarity between the metropolitan area and its central city, does significantly influence the distribution of poverty between the metropolitan area and its central city. Additionally, changes in metropolitan distribution of these variables coupled with change in the Index of Dissimilarity between the metropolitan area and its central city does significantly explain changes in the proportional distribution of metropolitan area poverty.

This study did not find evidence to support the suggestion (Blank and Card, 1993; Cloutier, 1997; Caputo, 1995) that these same variables influenced central city income inequality. It did find evidence that a limited relationship may exist between these variables and central city median household income.

BIBILIOGRAPHY

Bendavid-Val, Avrom. 1991. *Regional and Local Economic Analysis for Practitioners, Fourth Edition.* Praeger. Westport.

Berry, William and Stanley Feldman. 1985. *Multiple Regression in Practice.* Sage Publication.

Bingham, Richard D. and Zhongcai Zhang. 1997. "Poverty and Economic Morphology of Ohio Central-City Neighborhoods." *Urban Affairs Review.* Vol 32 No 6. pp 766 – 796.

Blank, Rebecca M. and David Card. 1993. "Poverty, Income Distribution, and Growth: Are They Still Connected?" *Brookings Papers on Economic Activity.* Vol 2. pp 285 – 325

Burgess, Ernest W. 1924. "The Growth of the City: An Introduction to a Research Project." pp 47 – 62 in *The City* edited by Robert E. Parks, Ernest W. Burgess, and Roderick D. McKenzie. University of Chicago Press. Chicago.

Caputo, Richard K. 1995. "Income Inequality and Family Poverty." *Families in Society: The Journal of Contemporary Human Services.* December.

Chakravorty, Sanjoy. 1996. "Urban Inequality Revisited: The Determinants of Income Distribution in U.S. Metropolitan Areas. *Urban Affairs Review.* Vol 31 No 6. pp 759 – 777.

Cloutier, Norman R. 1997. "Metropolitan Income Inequality During the 1980s: The Impact of Urban Development, Industrial Mix, and Family Structure." *Journal of Regional Science.* Vol 37, No 3. pp 459 – 478.

Danziger, Sheldon. 1976. "Determinants of the Level and Distribution of Family Income in Metropolitan Areas, 1969." *Land Economics.* Vol 52 No 4. pp 467 – 478.

Danziger, Sheldon and Peter Gottschalk. 1987. "Earning Inequality, the Spatial Concentration of Poverty, and the Underclass." *The American Economic Review.* May.

Eggers, Mitchell L. and Douglas S. Massey. 1992. "A Longitudinal Analysis of Urban Poverty: Blacks in U.S. Metropolitan Areas Between 1970 and 1980." *Social Science Research.* Vol 21. pp 175 – 203.

_____. 1991. "The Structural Determinants of Urban Poverty: A Comparison of Whites, Blacks, and Hispanics." *Social Science Research.* Vol 20. pp 217 – 255.

Farley, Reynolds and William H. Frey 1994. "Changes in the Segregation of Whites from Blacks during the 1980s: Small Steps Toward an Integrated Society." *American Sociological Review.* Vol 59. pp 23 – 45.

_____. 1993. "*Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps Toward an Integrated Society, Research Report No. 93 - 285.*" University of Michigan Population Studies Center. Ann Arbor, Michigan.

_____. 1992. "*Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps Toward an Integrated Society, Research Report No. 92 - 257.*" University of Michigan Population Studies Center. Ann Arbor, Michigan.

Feagin, Joe R. 1999. "Excluding Blacks and Others from Housing: The Foundation of White Racism." Pp 79 – 91 in *Cityscape: A Journal of Policy Development and Research.* U.S Department of Housing and Urban Development. Office of Policy Development and Research. Vol 4. No 3.

Formby, John P. 1997. "Regional Poverty and Inequality in the United States." Pp 43 – 77 in *Poverty and Inequality: The Political Economy of Redistribution* edited by Jon Neill. W.E. Upjohn Institute for Employment Research. Kalamzoo, Michigan.

Galster, George, Ronald Mincy and Mitchell Tobin. 1997. "The Disparate Racial Neighborhood Impacts of Metropolitan Economic Restructuring." *Urban Affairs Review.* Vol 32 No 6. pp 797 – 824.

Glickman, Norma J., Michael Lahr, and Elvin Wyly. 1998. "The State of the Nation's Cities Database: Database and Machine-Readable File Documentation, version 2.2a". Rutgers University. Center for Urban Policy Research. January. Accessed 31 January 2000. Available from http;//www.policy.rutgers.edu/cupr/sonc.htm. Internet.

Gottschalk, Peter and May Joyce. 1996. "The Impact of Technological Change, Deindustrialization, and Internationalization of Trade on Earning Inequality: An International Perspective. Pp 197 – 228 in *Poverty, Inequality, and the Future of Social Policy: Western States in the New World Order* edited by Katherine McFate, Roger Lawson, and William Julius Wilson. Russell Sage Foundation. New York.

Harrison, Bennett and Barry Bluestone. 1988. *The Great U-Turn: Corporate Restructuring and the Polarizing of America.*" Basic Book, Inc. New York.

Haverman, Robert. 1997. "Welfare Report – 1996 Style: Will We Sacrifice the 'Safety Net'." Pp 9 – 25 in *Poverty and Inequality: The Political Economy of Redistribution* edited by Jon Neill. W.E. Upjohn Institute for Employment Research. Kalamzoo, Michigan.

Hill, Edward W., John F. Brennan, and Harold L. Wolman. 1998. "What is a Central City in the United States? Applying a Statistical Technique for Developing Taxonomies." *Urban Studies.* Vol 35. Iss. 11. pp 1935 – 1954.

Holzer, Harry J. and Wayne Vroman. 1992 "Mismatch and the Urban Labor Market." Pp 81 – 112 in *Urban Labor Market and Job Opportunity* edited by George E. Peterson and Wayne Vroman. The Urban Institute Press. Washington, D.C.

Howell, David R. and Edward N. Wolff. 1991. "Trends in the Growth and Distribution of Skills in the U.S. Workplace, 1960 – 1985.." *Industrial and Labor Relations Review.* Vol 44, No 3. pp 486 – 502.

Hughes, Mark A. 1989. "Misspeaking Truth to Power: A Geographical Perspective on the "Underclass Fallacy." *Economic Geography.* Vol 65 No 3. pp 187 – 201.

Jargowsky, Paul A. 1997. *Poverty and Place: Ghettos, Barrios, and the American City.* Russell Sage Foundation. New York.

Johnson, James Jr, and Melvin L. Oliver. 1992. "Structural Changes in the U.S. Economy and Black Male Joblessness: A Reassessment." pp 112 – 147 in *Urban Labor Market and Job Opportunity* edited by George E. Peterson and Wayne Vroman. The Urban Institute Press. Washington, D.C.

Kachigan, Sam Kash. 1986. *Statistical Analysis.* Radius Press. New York

Kasarda, John D. 1995. "Industrial Restructuring and the Changing Location of Jobs." Pp 215 – 267 in *State of the Union: America in the 1990s, Volume One: Economic Trends* edited by Reynolds Farley. Russel Sage Foundation. New York.

_____. 1990. "Structural Factors Affecting the Location and Timing of Urban Underclass Growth." *Urban Geography.* Vol 11 No 3. pp 234 – 264.

_____. 1989. "Urban Industrial Transition and the Underclass." Pp 26 – 47 in *The Annals of the American Academy of Political and Social Science* edited by Richard d. Lambert. Sage Publication: Newbury.

_____. 1985. "Urban Changes and Minority Opportunities." Pp 33 – 67 in *The New Urban Reality* edited by Paul E. Paterson. The Brooking Institution. Washington DC.

Kephart, George. 1991. "Economic Restructuring, Population Redistribution, and Migration in the United States." pp 12 – 34 in *Urban Life in Transition* edited by M. Gottdiener and Chris G. Pickbance. Vol 39. Urban Affairs Annuals Review. Sage Publication: Newbury

Lerman, Robert I. and Stefanie R. Schmidt. 1999. "An Overview of Economic, Social, and Demographic Trends Affecting the U.S. Labor Market. (report on line) Urban Institute, accessed 18 Feb 00. Available from http:///www.urban.org/employment/dol_fr/dol_finalreport.html; Internet.

Lewin-Epstein, Noah and Moshe Semyonov. 1992. "Local Labor Markets, Ethnic Segregation, and Income Inequality." *Social Forces.* Vol 70 No 4. pp 1101 – 1119.

Madden, Janice Fanning. 1996. "Changes in the Distribution of Poverty Across and Within the US Metropolitan Areas, 1979 – 89." *Urban Studies.* Vol 33. No. 9. pp 1581 – 1600.

Massey, Douglas S. 1994. "American's Apartheid and the Urban Underclass." *Social Service Review.* December 1994. pp 471 – 487.

_____. 1990. "American Apartheid: Segregation and the Making of the Underclass." *American Journal of Sociology.* Vol 96 No 2. pp 329 - 357

Massey, Douglas S and Nancy A. Denton, 1993. *American Apartheid: Segregation and the Making of the Underclass.* Harvard University Press. Cambridge, MA

Massey, Douglas S, Andrew B.Gross, and Kumiko Shibuya. 1994. "Migration, Segregation, and the Geographic Concentration of Poverty." *American Sociological Review.* Vol 59. pp 425 – 455.

Massey, Douglas S., Andrew B. Gross, and Mitchell L. Eggers. 1991. "Segregation, the Concentration of Poverty, and the Life Chances of Individuals." *Social Science Research.* Vol 20. No 4. pp 397 – 420.

Massey, Douglas S and Mitchell L. Eggers. 1993. "The Spatial Concentration of Affluence and Poverty During the 1970s." *Urban Affairs Quarterly.* Vol 29. No 2. pp 299 – 315.

_____ 1990. "The Ecology of Inequality: Minorities and the Concentration of Poverty, 1970 – 1980." *American Journal of Sociology.* Vol 95 No 5 (March 1990) pp 1153 – 1188.

Newburger, Harriet. 1999. "Mobility Patterns of Lower Income First-Time Homebuyers in Philadelphia. Pp 201 - 220 in *Cityscape: A Journal of Policy Development and Research.* U.S Department of Housing and Urban Development. Office of Policy Development and Research. Vol 4. No 3. Washington D.C.

Norusis, Marija J. 1999. *Guide to Data Analysis, SPSS 9.0.* Prentice-Hall, Inc. New Jersery.

Orfield, Gary. 1992. "Urban Schooling and the Perpetuation of Job Inequality in Metropolitan Chicago." pp 161 – 200 in *Urban Labor Market and Job Opportunity* edited by George E. Peterson and Wayne Vroman. The Urban Institute Press. Washington, D.C.

O'Sullivan, Elizabethann and Gary R. Rassel. 1989. *Research Methods for Public Administrators.* Logman. New York

Peterson, George E. and Wayne Vroman. 1992. "Urban Labor Markets and Economic Opportunity." pp 2 – 29 in *Urban Labor Market and Job Opportunity* edited by George E. Peterson and Wayne Vroman. The Urban Institute Press. Washington, D.C.

Pindus, Nancy M and Demetra Smith Nightingale. 1995. "Improving the Upward Mobility of Low-Skill Workers: The Case of the Health Industry. (report on line) Urban Institute, accessed 18 Feb 00. Available from http://www.urban.org/health/finalrpt.htm#ny; Internet.

Pindyck, Robert S. and Daniel L. Rubinfeld. 1991. *Econometric Models and Economic Forecast, 3ed.* MacGraw-Hill Inc. New York.

Ruggles, Steven and Matthew Sobek. 2000. "Integrated Public Use Microdata Series." Minneapolis: Minnesota Historical Census Projects. University of Minnesota. Access 14 May 2000. Available from http://www.ipums.umn.edu/~pipums/intro.html

Sassen, Saskia. 1990. "Economic Restructuring and the American City." *Annual Review of Sociology.* Vol 16. 1990 pp 465 – 490.

State of the City Data System (SOCDS). Housing and Urban Development User – Policy Development and Research's Information Services. Accessed 28 July 2000. Available from http://webstage1.aspensys.com/SOCDS/SOCDS_Home.htm. Internet

The State of the Nation's Cities Database (SONC). Rutger University. Accessed 31 January 2000. available from http;//www.policy.rutgers.edu/cupr/sonc.htm. Internet

Steinacker, Annette. 1998. "Economic Restructuring of Cities, Suburbs, and Nonmetropolitan Areas, 1977 – 1992. *Urban Affairs Review.* Vol 34 No2. pp 212 – 240.

Teitz, Michael B. and Karen Chapple. 1998. "The Causes of Inner City Poverty: Eight Hypotheses in Search of Reality." pp 33 - 70 in *Cityscape: A Journal of Policy Development and Research.* U.S Department of Housing and Urban Development. Office of Policy Development and Research. Vol 3. No 3. Washington D.C.

U.S. Department of Housing and Urban Development. 1999. *"The State of the Cities, 1999."* Office of Policy Development and Research. Washington D.C.

Van Matre, Joseph G and Glenn H. Gilbreath. 1980. *Statistics for Business and Economics.* Business Publication, Inc. Dallas Texas.

Wilson, W.J. 1987. *The Truly Disadvantaged: The Inner City, The Underclass, and Public Policy.* Chicago, IL. University of Chicago.

_____. 1996. *When Work Disappears: The World of the New Urban Poor.* Vinate Books. New York.

Zoloth, Barbara S. 1976. "Alternative Measure of School Segregation." *Land Economics*. Vol 52 No 3. pp 278 – 197.

APPENDIX A

DETERMINATION OF CENTRAL CITY TYPOLOGY

Concentric cities (Burgess, 1924) are organized in a series of concentric zones radiating out from the city's center. The heart of the concentric city is its downtown center in which is focused the economic, cultural, and political life of the city. The second zone is the "zone of transition" which contains the factory complexes along with deteriorating neighborhoods. Beyond the "zone of transition" lies the settle zones of stable working-class families and professional families. The furthest zone, residential commuting, typifies the classic suburban life style. In other words, the concentric city is the stereotypical image of an MSA's central city that dominates the metropolitan area economic, cultural, and political life. Hill, et al, (1998) used hierarchical cluster analysis to form groups and then used discriminant analysis to further distinguish the cluster of cities into five sets of central cities. As a result of their analysis, they identified fifty-four central cities, which satisfied the stereotypical image of a central city. Utilizing their identification of the stereotypical central city, Table A.1, classifies the sixty cities used in this study as either concentric or non-concentric cities.

Table A.1 Concentric and Non-Concentric Cites

Concentric Cities	Non-Concentric Cities
Atlanta, GA	Albuquerque, NM
Baltimore, MD	Austin, TX
Birmingham, AL	Charlotte, NC
Boston, MA	Columbia, SC
Buffalo, NY	Columbus, OH
Chicago, IL	Dallas, TX
Cincinnati, OH	Denver, CO
Cleveland, OH	Des Moines, IA
Detroit, MI	El Paso, TX
Hartford, CT	Forth Worth, TX
Honolulu, HI	Fresno, CA
Memphis, TN	Houston, TX
Miami, FL	Indianapolis, IN
Minneapolis, MN	Jackson, MS
St. Paul, MN	Kansas City, MO/KS
New Orleans, LA	Las Vegas, NV
New York, NY	Little Rock, AR
Oakland, CA	Long Beach, CA
Philadelphia, PA	Los Angeles, CA
Pittsburgh, PA	Milwaukee, WI
St. Louis, MO	Nashville-Davidson, TN
San Francisco, CA	Oklahoma City, OK
Washington, DC	Omaha, NE
	Phoenix, AZ
	Portland, OR
	Sacramento, CA
	Salt Lake City, UT
	San Antonio, TX
	San Diego, CA
	San Jose, CA
	Seattle, WA
	Tampa, FL
	Toledo, OH
	Tucson, AZ
	Tulsa, OK
	Wichita, KS

APPENDIX B

STATISTICAL TABLES

Table B.1 1970 & 1990 Central City Proportional Descriptive Variables Statistics

Variables	Range	Min.	Max.	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
1970 Manufacturing	0.4504	0.0317	0.4821	0.2719	0.1080	0.0117
1990 Manufacturing	0.4289	0.0325	0.4613	0.2240	0.1081	0.0117
1970 Prof. Services	0.4545	0.0342	0.4887	0.3105	0.1008	0.0102
1990 Prof. Services	0.4464	0.0335	0.4799	0.2568	0.1060	0.0112
1970 Services	0.4547	0.0337	0.4884	0.3013	0.1036	0.0107
1990 Services	0.4459	0.0307	0.4766	0.2504	0.1110	0.0123
1970 Transportation	0.4503	0.0365	0.4869	0.2958	0.1027	0.0106
1990 Transportation	0.4345	0.0414	0.4760	0.2454	0.1051	0.0110
1970 Governmental	0.4461	0.0441	0.4902	0.3107	0.1032	0.0106
1990 Governmental	0.4420	0.0427	0.4847	0.2617	0.1028	0.0106
1970 Less than H.S	0.7903	0.0616	0.8519	0.5745	0.1826	0.0334
1990 Less than H.S.	0.8617	0.0579	0.9195	0.5048	0.2209	0.0488
1970 H. S. Grad.	0.8198	0.0574	0.8773	0.5731	0.1884	0.0355
1990 H.S. Grad.	0.8473	0.0256	0.8729	0.4795	0.2299	0.0528
1970 Less than Coll.	0.8025	0.0578	0.8603	0.5942	0.1894	0.0359
1990 Less than Coll.	0.8442	0.0491	0.8934	0.4817	0.2318	0.0537
1970 College Grad.	0.8231	0.0592	0.8824	0.5740	0.1901	0.0361
1990 College Grad.	0.8704	0.0538	0.9242	0.4960	0.2329	0.0542
1970 Index of Dissimilarity	0.3337	0.0016	0.3353	0.1418	0.0846	0.0072
1990 Index of Dissimilarity	0.388	-5.55112E-17	0.3880	0.1610	0.0853	0.0073
1970 Income Inequality	7.4110	5.0910	12.5020	7.1876	1.1300	1.2768
1990 Income Inequality	12.1110	5.6560	17.7670	9.7438	2.4324	5.9167
1970 Median Household Income	$7,425.79	$2,617.51	$10,043.30	$7,089.00	$1,108.41	1,228,573.80
1990 Median Household Income	$29,281.00	$16,925.00	$46,206.00	$25,929.27	$4,955.49	24,556,911.4
1970 Poverty	0.4506	0.0348	0.4854	0.3312	0.0903	0.0082
1990 Poverty	0.4512	0.0350	0.4861	0.3298	0.0900	0.0081

Table B.2 1970 & 1990 Central City Descriptive Variables Statistics

Variables	1970			1990		
	Central City Proportion	Central City Mean	MSA Mean	Central City Proportion	Central City Mean	MSA Mean
Manufacturing	27.19%	69,095	185,312	22.40%	61,287	212,853
Prof. Services	31.05%	78,022	169,526	25.68%	112,724	317,046
Services	30.13%	69,787	158,294	25.04%	85,045	252,061
Transportation	29.58%	20,490	45,441	24.54%	16,477	47,313
Governmental	31.07%	17,326	38,167	26.17%	16,724	47,610
Less than High School	57.45%	90,774	67,226	50.48%	40,378	39,610
College Graduates	57.40%	32,526	27,851	49.60%	80,906	82,211
Median Household Income*	87.64%	$7,089.00	$8,089.00	81.59%	$25,929.00	$31,780

*Central City Median Household Income divided by MSA Median Household Income

Table B.3 1970 – 1990 Proportional Change Variables Descriptive Statistics (N = 60)

Variables	Range	Min.	Max.	Mean	Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Manufacturing Change	.25	-.16	.09	-4.7854E-02	4.505E-02	2.030E-03
Professional Service Change	.33	-.20	.13	-5.3737E-02	4.741E-02	2.247E-03
Services Change	.32	-.19	.12	-5.0891E-02	4.780E-02	2.285E-03
Transportation Change	0.2484	-0.1528	0.0956	-0.0504	0.0437	0.0019
Governmental Change	0.4034	-0.2267	0.1767	-0.0490	0.0501	0.0025
Less Than High School Change	0.6229	-0.3607	0.2622	-0.0697	0.1394	0.0194
High School Graduate Change	0.7241	-0.3972	0.3269	-0.0936	0.1664	0.0277
Less Than College Change	0.6133	-0.3817	0.2316	-0.1125	0.1557	0.0243
College Graduate Change	0.8141	-0.4590	0.3551	-0.0781	0.1702	0.0290
Index of Dissimilarity Change	0.2791	-0.1232	0.1559	0.0192	0.0527	0.0028
Income Inequality Change	8.3880	-0.2160	8.1720	2.5562	1.8061	3.2621
Median Household Income Change	$25469.31	$10693.39	$36162.70	$18840.27	$4470.73	19987464.12
Poverty Change	0.2282	-0.0701	0.1581	-0.0014	0.0379	0.0014

Table B.4 Poverty Models Summary Comparison (b)

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1970	.896(b)	..803	.772	.04307
1990	.939c	.862	.864	.03319

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Poverty, 1970
c. Dependent Variable: Poverty, 1990

Table B.5 Poverty Model Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
1970(a)	(Constant)	.01164	.031		.380	.706
	Manufacturing	.455	.237	.544	1.919	.061
	Professional Service	-.114	.293	-.127	-.389	.699
	Service	.139	.511	.159	.272	.787
	Transportation	.612	.382	.697	1.603	.115
	Governmental	-.270	.198	-.308	-1.361	.179
	Less than High School	.212	.065	.428	3.242	.002
	College Graduate	-1.67	.065	-.352	-2.582	.013
	Index of Dissimilarity	.468	.088	.439	5.324	.000
1990(b)	(Constant)	.02936	.020		1.502	.139
	Manufacturing	.367	.256	.441	1.436	.157
	Professional Service	-.419	.443	-.494	-.945	.349
	Service	.651	.550	.803	1.184	.242
	Transportation	.05369	.248	.063	.216	.830
	Governmental	.182	.176	.208	1.036	.305
	Less than High School	.08612	.040	.211	2.133	.038
	College Graduate	-.05368	.039	-.139	-1.381	.173
	Index of Dissimilarity	.529	.077	.501	6.886	.000

a. Dependent Variable: Poverty, 1970
b. Dependent Variable: Poverty, 1990

Table B.6 Poverty Models ANOVA (a) Comparisons

Year	Model	Sum of Square	Df	Mean Squares	F	Sig
1970	Regression	.387	8	.04831	26.042	.000(a)
	Residual	.09462	51	.001855		
	Total	.481	59			
1990	Regression	.421	8	.05267	47.822	.000c
	Residual	.05617	51	.001101		
	Total	.477	59			

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Poverty, 1970
c. Dependent Variable: Poverty,1990

Table B.7 Goldfeld-Quandt Test, Poverty[a]

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	$F_o = ESS_u/ESS_l$	$F_{cv(1\%\ sig)}$
1970 Low	Regression	8	0.22850	0.02856	22.23086	.000	1.6812	2.86
	Residual	21	0.02698	0.00128				
	Total	29	0.25549					
1970 High	Regression	8	0.17022	0.02128	9.85031	.000		
	Residual	21	0.04536	0.00216				
	Total	29	0.21558					
1990 Low	Regression	8	0.30491	0.03811	48.72484	.000	1.64069	2.86
	Residual	21	0.01643	0.00078				
	Total	29	0.32134					
1990 High	Regression	8	0.12903	0.01612	12.56721	.000		
	Residual	21	0.02695	0.00128				
	Total	29	0.15598					

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity

b. Dependent Variable: Poverty Change

c. All Models sorted on Index of Dissimilarity

Table B.8 Poverty Models, without Index of Dissimilarity, Summary Comparison [a]

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1970	.833[b]	.684	.653	.0532
1990	.879[c]	.773	.742	.0456

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate
b. Dependent Variable: Poverty, 1970
c. Dependent Variable: Poverty, 1990

Table B.9 Poverty Model, without Index of Dissimilarity, Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
1970[a]	(Constant)	.128	.027		4.813	.000
	Manufacturing	.260	.289	.311	.899	.373
	Professional Service	-.111	.362	-.124	-.307	.760
	Service	-.148	.628	-.170	-.236	.814
	Transportation	.516	.471	.587	1.095	.278
	Governmental	.143	.225	.163	.635	.528
	Less than High School	.228	.081	.460	2.823	.004
	College Graduate	-.202	.080	-.426	-2.541	.014
1990[b]	(Constant)	.127	.019		6.848	.000
	Manufacturing	.0291	.346	.047	.113	.910
	Professional Service	.326	.591	.384	.551	.584
	Service	-.448	.724	-.552	-.619	.539
	Transportation	.233	.340	.272	.685	.497
	Governmental	.588	.228	.672	2.582	.013
	Less than High School	.125	.055	.307	2.276	.027
	College Graduate	-.104	.053	-.269	-1.978	.053

a. Dependent Variable: Poverty, 1970
b. Dependent Variable: Poverty, 1990

Table B.10 Poverty Models, Withouth Index of Dissimilarity, ANOVA[a] Comparisons

Year	Model	Sum of Square	Df	Mean Squares	F	Sig
1970	Regression	.334	7	.04771	16.853	.000[b]
	Residual	.147	52	.002831		
	Total	.481	59			
1990	Regression	.369	7	.05273	25.296	.000[c]
	Residual	.108	52	.002084		
	Total	.477	59			

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate
b. Dependent Variable: Poverty, 1970
c. Dependent Variable: Poverty,1990

Table B.11 Income Inequality Models Summary Comparison (b)

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1970	.449(b)	.201	.076	1.0861
1990	.454(c)	.207	.082	2.3305

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Income Inequality, 1970
c. Dependent Variable: Income Inequality, 1990

Table B.12 Income Inequality Model Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
1970(a)	(Constant)	6.553	.773		8.479	.000
	Manufacturing	-9.915	5.975	-.948	-1.660	.103
	Professional Service	-3.511	7.391	-.313	-.475	.637
	Service	21.723	12.891	1.992	1.685	.098
	Transportation	-10.231	9.632	-.930	-1.062	.293
	Governmental	2.262	4.993	.207	.453	.652
	Less than High School	4.223	1.647	.682	2.563	.013
	College Graduate	-4.091	1.633	.688	-2.205	.015
	Index of Dissimilarity	.857	2.219	.064	.386	.701
1990(b)	(Constant)	8.734	1.373		6.362	.000
	Manufacturing	3.043	17.953	.135	.169	.866
	Professional Service	-5.082	31.114	-.221	-.163	.871
	Service	-4.325	38.600	-.197	-.112	.911
	Transportation	-7.467	17.443	-.323	-.428	.670
	Governmental	9.441	12.332	.399	.766	.447
	Less than High School	-.569	2.836	-.052	-.201	.842
	College Graduate	1.743	2.730	.167	.638	.526
	Index of Dissimilarity	9.318	5.391	.327	1.728	.090

a. Dependent Variable: Income Inequality, 1970
b. Dependent Variable: Income Inequality, 1990

Table B.13 Income Inequality Models ANOVA (a) Comparisons

	Model	Sum of Square	Df	Mean Squares	F	Sig
1970	Regression	15.177	8	1.897	1.608	.146(b)
	Residual	60.155	51	1.180		
	Total	75.333	59			
1990	Regression	72.089	8	9.011	1.659	.132(c)
	Residual	276.995	51	5.431		
	Total	349.084	59			

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Income Inequality, 1970
c. Dependent Variable: Income Inequality, 1990

Table B.14 Goldfeld-Quandt Test, Income Inequality[a]

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	$F_0 = ESS_u/ESS_l$	$F_{cv(1\%\ sig)}$
1970 Low[c]	Regression	8	8.1584	1.0198	1.5304	0.2061	1.8071	2.86
	Residual	21	13.9932	0.6663				
	Total	29	22.1516					
1970 High	Regression	8	27.8675	3.4834	2.8928	0.0243		
	Residual	21	25.2877	1.2042				
	Total	29	53.1552					
1990 Low[d]	Regression	8	16.4157	2.05200	0.0476	0.8591	1.3011	2.86
	Residual	21	90.4652	4.3079				
	Total	29	106.8809					
1990 High	Regression	8	77.0566	9.6321	1.7185	0.1525		
	Residual	21	117.7025	5.6049				
	Total	29	194.7590					

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity

b. Dependent Variable: Income Inequality

c. 1970 Income Inequality Model Sorted on Less Than High School

d. 1990 Income Inequality Model Sorted on Index of Dissimilarity

Table B.15 Median Household Income Models Summary Comparison (b)

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1970	.644(b)	.415	.323	$911.82
1990	.559(c)	.312	.204	$4420.20

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Median Household Income, 1970
c. Dependent Variable: Median Household Income, 1990

Table B.16 Median Household Income Model Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
1970(a)	(Constant)	6885.991	648.898		10.612	.000
	Manufacturing	-3306.226	5016.008	-.322	-.659	.513
	Professional Service	-22659.26	6205.542	-2.060	-3.651	.001
	Service	19245.448	10822.656	1.799	1.778	.081
	Transportation	9584.163	8086.795	.888	1.185	.241
	Governmental	998.312	4192.311	.093	.238	.813
	Less than High School	-775.971	1382.995	-.128	-.561	.577
	College Graduate	-434.701	1371.231	-.075	-.317	.753
	Index of Dissimilarity	-778.097	1862.697	-.059	-.418	.678
1990(b)	(Constant)	30080.623	2603.704		11.533	.000
	Manufacturing	-30352.37	34051.780	-.662	-.891	.377
	Professional Service	17723.075	59013.181	.379	.300	.765
	Service	-30652.86	73211.215	-.687	-.419	.677
	Transportation	80715.963	33082.895	1.711	2.440	.018
	Governmental	-24012.09	23388.765	-.498	-1.027	.309
	Less than High School	-5302.917	5378.401	-.236	-.986	.329
	College Graduate	-1493.921	5177.811	-.070	-.289	.774
	Index of Dissimilarity	-26889.71	10225.114	-.463	-2.630	.011

a. Dependent Variable: Median Household Income, 1970
b. Dependent Variable: Median Household Income, 1990

Table B.17 Median Household Income Models ANOVA (a) Comparisons

	Model	Sum of Square	Df	Mean Squares	F	Sig
1970	Regression	30083778	8	3760472.3	4.523	.000(b)
	Residual	42402076	51	831413.26		
	Total	72485854	59			
1990	Regression	4.52E+08	8	56551439	2.894	.010(c)
	Residual	9.96E+08	51	19538162		
	Total	1.45E+09	59			

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Median Household Income, 1970
c. Dependent Variable: Median Household Income

Table B.18 Goldfeld-Quandt Test, Median Household Income[a]

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	F_o = ESS_H/ESS_L	$F_{cv(1\%\ sig)}$
1970 Low[c]	Regression	8	28227276.08	3528409.51	4.5184	.0026	0.8276	2.86
	Residual	21	16398930.9	780901.4713				
	Total	29	44626206.98					
1970 High	Regression	8	9476716.781	1184589.598	1.833	.1269		
	Residual	21	13571629.49	646268.0709				
	Total	29	23048346.27					
1990 Low[d]	Regression	8	256632255	32079031.88	1.0751	.4167	.4049	2.86
	Residual	21	626578206.9	29837057.47				
	Total	29	883210461.9					
1990 High	Regression	8	145407200.6	18175900.08	1.4935	.2186		
	Residual	21	255567442.6	12169878.22				
	Total	29	400974643.2					

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Median Household Income
c. 1970 Median Household Income Model sorted on Professional Services
d. 1990 Median Household Income Model sorted on Index of Dissimilarity

Table B.19 Central City Poverty, 1970 -1990 Summary[a]

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1970 – 1990	.895[d]	.800	.786	.04152

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity
b. Dependent Variable: Poverty, 1970-1990

Table B.20 Central City Poverty Model, 1970 – 1990, Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
1970-1990[c]	(Constant)	.03392	.018		1.837	.069
	Manufacturing	.439	.181	.539	2.423	**.017**
	Professional Service	-.298	.234	-.353	-1.275	.205
	Service	.446	.356	.546	1.252	.213
	Transportation	.290	.230	.344	1.263	.209
	Governmental	-.09118	.140	-.107	-.650	.517
	Less than High School	.132	.038	.300	3.494	**.001**
	College Graduate	.09215	.036	-.221	-2.527	**.013**
	Index of Dissimilarity	.496	.062	.470	7.986	**.000**

a. Dependent Variable: Poverty, 1970 - 1990

Table B.21 Central City Poverty Models, 1970 - 1990 ANOVA [a] Comparisons

	Model	Sum of Square	Df	Mean Squares	F	Sig
1970 – 1990	Regression	.767	8	.09592	55.644	.000[a]
	Residual	.191	111	.001724		
	Total	.959	119			

Table B.22 Goldfeld-Quandt Central City Poverty Model[a], 1970 - 1990

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	F_o = ESS_u/ESS_l	$F_{cv(1\%\ sig)}$
1970 - 1990 Low[c]	Regression	8	0.5045	0.0361	44.4080	2.455E-20	1.458	1.8
	Residual	51	0.0724	0.0014				
	Total	59	0.5769					
1970 - 1990 High	Regression	8	0.2674	0.0334	16.1422	1.413E-11		
	Residual	51	0.1056	0.0021				
	Total	59	0.3730					

a. Predictors: (Constant), Manufacturing, Professional Services, Services, Transportation, Governmental, Less than High School, College Graduate, Index of Dissimilarity

b. Dependent Variable: Poverty, 1970 - 1990

c. Central City Poverty Model, 1970 – 1990 sorted on Index of Dissimilarity

Table B.23 Economic Infrastructure Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1970 Manufacturing – 1990 Manufacturing	4.785E-02	4.505E-02	5.816E-03	3.237E-02	6.344E-02	8.227	59	.000
Pair 2	1970 Prof. Services – 1990 Prof. Services	5.309E-02	4.442E-02	5.735E-03	3.782E-02	6.835E-02	9.257	59	.000
Pair 3	1970 Services – 1990 Services	2.082E-02	4.520E-02	5.835E-03	5.293E-02	3.636E-02	3.569	59	.001
Pair 4	1970 Transportation – 1990 Transportation	5.041E-02	4.375E-02	5.648E-03	3.538E-02	6.545E-02	8.927	59	.000
Pair 5	1970 Governmental - 1990 Governmental	4.900E-02	5.011E-02	6.469E-03	3.179E-02	6.622E-02	7.575	59	.000

Table B.24 Distribution of Skilled Labor Force Paired Samples Test

(As Measured by Educational Achievement of Employed Workers)

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1970 Less than H. S. — 1990 Less than H.S.	6.967E-02	.1394	1.799E-02	2.178E-02	.1176	3.872	59	.000
Pair 2	1970 H.S. Graduate — 1990 H.S. Graduate	9.362E-02	.1664	2.149E-02	3.643E-02	.1508	4.357	59	.000
Pair 3	1970 Less than College – 1990 Less than College	.1125	.1557	2.011E-02	5.896E-02	.1660	5.594	59	.000
Pair 4	1970 College Graduate – 1990 College Graduate	7.805E-02	.1702	2.197E-02	1.957E-02	.1365	3.552	59	.001

Table B.25 Index of Dissimilarity Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	7DSI - 9DSI	-1.9181E-02	5.267E-02	6.800E-03	-3.7282E-02	-1.0807E-03	-2.821	59	.007

Table B.26 Central City Poverty Change Model, 1970 – 1990, Summary[a]

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.778[b]	.606	.544	2.556E-02

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change

b. Dependent Variable: Proportional Change in Poverty, 1970 - 1990

Table B.27 Central City Poverty Change Model, 1970 – 1990, Coefficients [a]

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
Base	(Constant)	1.093E-02	.006		1.891	.064
	Manufacturing Change	.141	.226	.167	.622	.537
	Professional Service Change	-1.019	.170	-1.276	-5.976	.000
	Service Change	.760	.290	.959	2.618	.012
	Transportation Change	1.002	.260	1.158	3.857	.000
	Governmental Change	-.540	.164	-.715	-3.303	.002
	Less than High School Change	9.046E-02	.032	.333	2.830	.007
	College Graduate Change	-3.834E-02	.025	-.172	-1.538	.130
	Index of Dissimilarity Change	.296	.078	.412	3.822	.000

a. Dependent Variable: Proportional change in Poverty, 1970 - 1990

Table B.28 Central City Poverty Change Model, 1970 – 1990, ANOVA [a]

Model	Sum of Square	Df	Mean Squares	F	Sig
Regression	5.125E-02	8	6.407E-03	9.804	.000(a)
Residual	3.333E-02	51	6.535E-04		
Total	8.458E-02	59			

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change.

b. Dependent Variable: Proportional Change in Poverty, 1970 - 1990

Table B.29 Goldfeld-Quandt Test, Central City Poverty Change Model, 1970 – 1990 (a)

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	$F_0 = ESS_0/ESS_1$	$F_{cv(1\%\ sig)}$
1970 – 1990 Low	Regression	8	0.0119	0.0015	2.6981	0.0326	1.1614	2.86
	Residual	21	0.0116	0.0006				
	Total	29	0.0235					
1970 - 1990 High	Regression	8	0.0434	0.0542	11.3823	0.0000		
	Residual	21	0.0100	0.0005				
	Total	29	0.0534					

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change.
b. Dependent Variable: Central City Poverty Change from 1970 – 1990
c. Central City Poverty Change Model, 1970 – 1990, sorted on Professional Services

Table B.30 Central City Poverty Change Model, 1970 – 1990 , Coefficient Correlation Matrix

Model			Index of Dissimilaity Change	Service Change	Less Than H.S Change	College Graduuate Change	Governmental Change	Professional Service Change	Manufacturing Change	Transportation Change
1	Correlation	Index of Dissimilaity Change	1.000							
		Service Change	-.024	1.00						
		Less Than H.S Change	.180	-.124	1.000					
		College Graduuate Change	-.144	.010	-.609	1.00				
		Governmental Change	-.442	-.284	-.118	.062	1.000			
		Professional Service Change	-.265	-.565	.010	.099	.201	1.00		
		Manufacturing Change	.192	-.554	.337	-.144	-.008	.250	1.00	
		Transportation Change	.340	-.171	-.053	-.001	-.434	-.295	-.321	1.00

Table B.31 Central City Poverty Change Model, 1970 – 1990, Without Index of Dissimilarity, Summary (a)

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.702(b)	.493	.425	.02871

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change

b. Dependent Variable: Proportional Change in Poverty, 1970 - 1990e

Table B.32 Central City Poverty Change Model, Without Index of Dissimilarity, 1970 – 1990, Coefficients (a)

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
Base	(Constant)	.01539	.006		2.420	.019
	Manufacturing Change	-.02526	.249	-.030	-.101	.920
	Professional Service Change	-.846	.185	-1.059	-4.583	.000
	Service Change	.787	.326	.993	2.414	.019
	Transportation Change	.664	.274	.768	2.421	.019
	Governmental Change	-.264	.165	-.349	-1.601	.115
	Less than High School Change	.06853	.035	.252	1.940	.058
	College Graduate Change	-.02462	.028	-.111	-.888	.378

a. Dependent Variable: Proportional change in Poverty, 1970 - 1990

Table B.33 Central City Poverty Change Models, without Index of Dissimilarity, 1970 – 1990, ANOVA (a)

Model	Model	Sum of Square	Df	Mean Squares	F	Sig
1	Regression	.04171	7	.005958	7.227	.000(a)
	Residual	.04287	52	.0008245		
	Total	.08458	59			

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change

b. Dependent Variable: Proportional Change in Poverty, 1970-1990

Table B.34 Central City Income Inequality Paired Samples Test

		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Dev.	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1970 Income Inequality – 1990 Income Inequality	-2.5562	1.8061	.2332	-3.1768	-1.9355	-10.963	59	.000

Table B.35 Income Inequality Change Model, 1970 – 1990, Summary [a]

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.453[b]	.205	.080	1.7320

a. Predictors: (Constant), **Manufacturing** Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change

b. Dependent Variable: Income Inequality Change, 1970 - 1990

Table B.36 Income Inequality Change Model, 1970 – 1990, Coefficients [a]

	Unstandardized Coefficients		Standardized Coefficients		
Variables	B	Std Error	Beta	t	Sig.
(Constant)	2.220	.392		5.669	.000
Manufacturing Change	-14.001	15.327	-.349	-.913	.365
Professional Service Change	-4.829	11.549	-.127	-.418	.678
Service Change	-31.775	19.662	-.841	-1.616	.112
Transportation Change	23.241	17.602	.563	1.320	.193
Governmental Change	21.416	11.080	.594	1.933	.059
Less than High School Change	.-734	2.165	-.057	-.339	.736
College Graduate Change	-.295	1.689	-.028	-.175	.862
Index of Dissimilarity Change	-3.317	5.256	-.097	-.631	.531

a. Dependent Variable: Income Inequality Change, 1970 - 1990

Table B.37 Central City Income Inequality Change Model, 1970 – 1990, ANOVA [a]

Model	Sum of Square	Df	Mean Squares	F	Sig
Regression	39.480	8	4.935	1.645	.135[a]
Residual	152.983	51	3.00		
Total	192.463	59			

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Discrimination Change.

b. Dependent Variable: Income Inequality Change, 1970 - 1990

Table B.38 Goldfeld-Quandt Test, Central City Income Inequality Change Model, 1970 – 1990 [a]

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	$F_0 = ESS_u/ESS_l$	$F_{cv(1\%\ sig)}$
1970 – 1990 Low	Regression	8	103934832.2	12991854.03	1.0812	0.4129	1.5263	2.86
	Residual	21	252334076.6	12015908.41				
	Total	29	356268908.9					
1970 - 1990 High	Regression	8	197234199.3	24654274.91	1.3443	0.2765		
	Residual	21	385126053.9	18339335.9				
	Total	29	582360253.1					

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change.
b. Dependent Variable: Central City Income Inequality Change from 1970 – 1990
c. Central City Income Inequality Change Model, 1970 – 1990, sorted on Services

Table B.39 Central City Median Household Income Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1970 Median Household Income – 1990 Median Household Income	-$18,840.27	-$4,470.73	-$577.17	-$20,376.55	-$17,303.98	-32.643	59	.000
Pair 2	1970 Adjusted Median Household Income - 1990 Adjusted Median Household Income	-$2,591.12	-$5,805.08	-$749.43	-$4,585.92	-$596.31	-3.457	59	.001

Table B.40 Central City Median Household Income Change Model, 1970 - 1990 Summary(a)

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
Unadjusted (b)	.624(b)	.389	.293	$3758.50
Adjusted (c)	.668(c)	.446	.359	$4648.71

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change

b. Dependent Variable: Median Household Income Change between 1970 and 1990, Model 1

c. Dependent Variable: Adjusted Median Household Income Change between 1970 and 1990, Model 2

Table B.41 Median Household Income Change Model Coefficients

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
1 (a)	(Constant)	22050.460	849.948		25.943	.000
	Manufacturing Change	46719.297	33260.668	.471	1.405	.166
	Professional Service Change	8526.017	52062.367	.090	.340	.735
	Service Change	18592.512	42668.158	.199	.436	.665
	Transportation Change	-4672.570	38198.757	-.046	-.122	.903
	Governmental Change	-21383.13	24043.908	-.240	-.889	.378
	Less than High School Change	1149.515	4699.049	.036	.245	.808
	College Graduate Change	4237.582	3666.071	.161	1.156	.253
	Index of Dissimilarity Change	-23082.47	11406.539	-.272	-2.024	.048
2(b)	(Constant)	5667.701	1051.260		5.391	.000
	Manufacturing Change	46396.891	41138.535	.360	1.128	.265
	Professional Service Change	-58464.49	30998.448	-.477	-1.886	.065
	Service Change	75659.634	52774.212	.623	1.434	.158
	Transportation Change	-8706.575	47246.223	-.066	-.184	.855
	Governmental Change	-3394.083	29738.764	-.029	-.114	.910
	Less than High School Change	-4436.798	5812.030	-.106	-.763	.449
	College Graduate Change	5483.088	4634.388	.161	1.209	.232
	Index of Dissimilarity Change	-33142.99	14108.205	-.301	-2.349	.023

a. Dependent Variable: Median Household Income Change between 1970 and 1990
b. Dependent Variable: Adjusted Median Household Income Change between 1970 and 1990

Table B.42 Central City Median Household Income Change Model, 1970 – 1990, ANOVA (a)

Model	Model	Sum of Square	Df	Mean Squares	F	Sig
Undigested (b)	Regression	4.59E+08	8	57352196	4.060	.000(b)
	Residual	7.20E+08	51	14126330		
	Total	1.18E+09	59			
Adjusted (c)	Regression	8.87E+08	8	1.11E+08	5.128	.000(c)
	Residual	1.10E+09	51	21610512		
	Total	1.99E+09	59			

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Discrimination Change.
b. Dependent Variable: Median Household Income Change, 1970 – 1990
c. Dependent Variable: Adjusted Median Household Income Change, 1970 - 1990

Table B.43 Goldfeld-Quandt Test, Central City Median Household Income Change Model, 1970 - 1990

Model Year	Model	Df	Sum of Squares	Mean Square	F	Sig	$F_u = ESS_u/ESS_l$	$F_{cv(1\%\ sig)}$
1970 – 1990 MHIC Low	Regression	8	197234199.3	24654274.91	1.3443	.02765	1.5263	2.86
	Residual	21	385126053.9	18339335.9				
	Total	29	582360253.1					
1970 – 1990 MHIC High	Regression	8	103934832.2	12991854.03	1.0812	.04130		
	Residual	21	252334076.6	12015908.41				
	Total	29	356268908.9					
1970 – 1990 Adjusted MHIC Low	Regression	8	238421787	29802723.38	2.1707	0.0740	2.2811	2.86
	Residual	21	288313507.9	13728214.66				
	Total	29	526735295					
1970 – 1990 Adjusted MHIC High	Regression	8	408179169.6	51022396.2	1.6292	0.1760		
	Residual	21	657669123.9	31317577.33				
	Total	29	1065848293					

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change.
b. Dependent Variable: Central City Median Household Income Change from 1970 – 1990
c. Dependent Variable: Central City Median Household Income Change from 1970 – 1990
d. Central City Median Household Income Inequality Change Model and Adjusted Median Household Change Model, 1970 – 1990, sorted on Services

Table B.44 1970 – 1990 Descriptive Statistics for Concentric and Non-concentric Cities

Variables	City Type	N	Range	Min.	Max.	Mean	Std. Deviation	Variance	Skewness	
		Statistics	Statistics	Statistics	Statistics	Statistics	Statistics	Statistics	Statistics	Std. Error
Manufacturing	Concentric	23	.10	-.11	-.01	-6.315E-02	2.843E-02	80.85E-04	.532	.481
	NonConcentric	37	.25	-.16	.09	-3.8367E-02	5.090E-02	2.591E-03	.432	.388
Professional Service	Concentric	23	.13	-.13	-.01	-6.2757E-02	2.689E-02	7.232E-04	-.365	.481
	NonConcentric	37	.33	-.20	.13	-4.8130E-02	5.619E-02	3.157E-03	.368	.388
Services	Concentric	23	.12	-.13	-.01	-6.6233E-02	3.105E-02	9.643E-02	.008	.481
	NonConcentric	37	.32	-.19	.12	-4.1353E-02	5.396E-02	2.912E-03	.243	.388
Transportation	Concentric	23	.12	-.11	.00	-5.7084E-02	2.622E-02	6.877E-04	.479	.481
	NonConcentric	37	.25	-.15	.10	-4.6268E-02	5.167E-02	2.670E-03	.521	.388
Governmental	Concentric	23	.11	-.12	.00	-5.7707E-02	2.297E-02	5.277E-04	-.272	.481
	NonConcentric	37	.40	-.23	.18	-4.3595E-02	6.094E-02	3.714E-03	.795	.388
Less Than High School	Concentric	23	.47	-.27	.19	-8.0137E-02	.1321	1.744E-02	.481	.481
	NonConcentric	37	.62	-.36	.26	-6.3158E-02	.1451	2.106E-02	.076	.388
College Graduate	Concentric	23	.81	-.46	.36	-.1020	-1881	3.539E-02	.805	.481
	NonConcentric	37	.66	-.37	.29	-6.3176E-02	.1589	2.525E-02	.210	.388
Index of Dissimilarity	Concentric	23	.28	-.12	.16	1.708E-02	6.316E-02	3.989E-03	.283	.481
	NonConcentric	37	.20	-.07	.13	2.049E-02	4.588E-02	2.105E-03	.278	.388
Poverty	Concentric	23	.10	-.05	.05	-8.4326E-02	2.414E-02	5.828E-02	.380	.481
	NonConcentric	37	.23	-.07	.16	2.993E-03	4.407E-02	1.942E-03	1.286	.388

Table B.45 1970 – 1990 Concentric and Non-concentric Cities Independent Sample *t*-Test

Variables		Levene's Test for Equality of Variance		*t*-test for Equality of Means					99% Confidence Interval of the Difference	
		F	Sig	t	Df	Sig (2-tailed)	Mean Difference	Std Error Difference	Lower	Upper
Manufacturing	Equal Variance Assumed	4.053	.049	-2.130	58	.037	-2.4747E-02	1.162E-02	-5.57E-02	6.200E-03
	Equal Variance Not Assumed			**-2.413**	**57.503**	**.019**	**-2.474E.02**	**1.026E-02**	**-5.21E-02**	**2.575E-03**
Professional Service	Equal Variance Assumed	4.233	.044	-1.165	58	.249	-1.4626E-02	1.255E-02	-4.80E-02	1.880E-02
	Equal Variance Not Assumed			**-1.1354**	**55.165**	**.181**	**-1.4626E-02**	**10.81E-02**	**-4.35E-02**	**1.420E-02**
Services	**Equal Variance Assumed**	3.239	.077	**-2.010**	**58**	**.049**	**-2.4880E-02**	**1.238E-02**	**-5.78E-02**	**8.087E-03**
	Equal Variance Not Assumed			-2.265	57.753	.027	-2.4880E-02	1.098E-02	-5.41E-02	4.376E-03
Transportation	Equal Variance Assumed	7.052	.010	-.930	58	.356	-1.0815E-02	1.163E-02	-4.18E-02	2.016E-02
	Equal Variance Not Assumed			**-1.071**	**56.219**	**.289**	**-1.0815E-02**	**1.010E-02**	**-3.78E-02**	**1.612E-02**
Governmental	Equal Variance Assumed	4.030	.046	-1.062	58	.293	-1.4112E-02	1.329E-02	-4.95E-02	2.129E-02
	Equal Variance Not Assumed			**-1.271**	**50.058**	**.210**	**-1.4112E-02**	**1.111E-02**	**-4.38E-02**	**1.562E-02**
Less Than High School	**Equal Variance Assumed**	.096	.757	**-.456**	**58**	**.650**	**-1.6978E-02**	**3.725E-02**	**-.1162**	**8.224E-02**
	Equal Variance Not Assumed			-.466	50.149	.643	-1.6978E-02	3.643E-02	-.1145	8.057E-02

Table B.45, Continued Concentric and NonConcentric Cities Independent Sample *t*-Test

Variables		Levene's Test for Equality of Variance		*t*-test for Equality of Means					99% Confidence Interval of the Difference	
		F	Sig	t	Df	Sig (2-tailed)	Mean Difference	Std Error Difference	Lower	Upper
College Graduate	**Equal Variance Assumed**	.133	**.717**	**-.857**	**58**	**.395**	**-3.8813E-02**	**4.529E-02**	**-.1594**	**8.182E-02**
	Equal Variance Not Assumed			-.824	40.925	.415	-3.8813E-02	4.713E-02	-.1661	8.851E-02
Index of Dissimilarity	**Equal Variance Assumed**	1.931	**.170**	**-.241**	**58**	**.810**	**-3.4035E-03**	**1.410E-02**	**-4.10E-02**	**3.415E-02**
	Equal Variance Not Assumed			-.224	36.404	.824	-3.4035E-03	1.518E-.2	-4.47E-02	3.784E-02
Poverty	**Equal Variance Assumed**	2.579	**.114**	**-1.139**	**58**	**.259**	**-1.1425E-02**	**1.003E-02**	**-3.81E-02**	**1.528R-02**
	Equal Variance Not Assumed			-1.295	57.298	.200	-1.1425E-02	8.822E-03	-3.49E-02	1.208E-02

Table B.46 1970 – 1990 Concentric and Nonconcentric Cities, Mann-Whitney U Test

	Mann-Whitney U	Wilcoxon W	Z	Asysmp. Sig. (2-tail)
Manufacturing	279.000	555.000	-2.227	.026
Professional Service	326.000	602.000	-1.513	.130
Service	265.000	541.000	-2.440	.015
Transportation	366.000	642.000	-.905	.366
Governmental	339.000	615.000	-1.315	.188
Less than High School	388.000	644.000	-.570	.569
College Graduate	349.000	625.000	-1.163	.245
Index of Dissimilarity	395.000	671.000	-4.464	.643

Table B.47 Concentric and Non-concentric Poverty Change Models, 1970 - 1990 Summary Comparison (b)

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
Base	.778(b)	.606	.544	2.556E-02
Concentric	.783(c)	.613	.392	1.882E-02
NonConcentric	.824(d)	.679	.587	2.832E-02

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Dissimilarity Change
b. Dependent Variable: Poverty Change, 1970-1990
c. Dependent Variable: Concentric Poverty Change, 1970-1990
d. Dependent Variable: NonConcentric Poverty Change, 1970-1990

Table B.48 Poverty Change Models, Concentric and Non-Concentric Coefficients Comparison

		Unstandardized Coefficients		Standardized Coefficients		
Model	Variables	B	Std Error	Beta	t	Sig.
Base	(Constant)	1.093E-02	.006		1.891	.064
	Manufacturing Change	.141	.226	.167	.622	.537
	Professional Service Change	-1.019	.170	-1.276	-5.976	.000
	Service Change	.760	.290	.959	2.618	.012
	Transportation Change	1.002	.260	1.158	3.857	.000
	Governmental Change	-.540	.164	-.715	-3.303	.002
	Less than High School Change	9.046E-02	.032	.333	2.830	.007
	College Graduate Change	-3.834E-02	.025	-.172	-1.538	.130
	Index of Dissimilarity Change	.296	.078	.412	3.822	.000
Concentric	(Constant)	1.477E-02	.013		1.171	.261
	Manufacturing Change	-.295	.346	.347	.853	.408
	Professional Service Change	-.387	.519	-.431	-.745	.469
	Service Change	.115	.423	.148	.273	.789
	Transportation Change	.333	.386	.362	.864	.402
	Governmental Change	.161	.477	.153	.337	.741
	Less than High School Change	3.855E-02	.043	.211	.901	.383
	College Graduate Change	-5.500E-02	.027	-.429	-2.013	.064
	Index of Dissimilarity Change	.267	.096	.698	2.781	.015
Non-concentric	(Constant)	1.076E-02	.007		1.476	.151
	Manufacturing Change	6.446E-02	.336	.074	.192	.849
	Professional Service Change	-1.172	.206	-1.495	-5.703	.000
	Service Change	1.144	.457	1.400	2.504	.018
	Transportation Change	1.046	.438	1.227	2.389	.024
	Governmental Change	-.733	.208	-1.014	-3.526	.001
	Less than High School Change	5.711E-02	.058	.188	.985	.333
	College Graduate Change	1.682E-02	.045	.061	.374	.712
	Index of Dissimilarity Change	.326	.154	.339	2.118	.043

a. Dependent Variable: Poverty Change, 1970-1990
b. Dependent Variable: Concentric Poverty Change, 1970-1990
c. Dependent Variable: Non-Concentric Poverty Change, 1970-1990

Table B.49 Concentric / Nonconcentric Poverty Models ANOVA [a] Comparisons

	Model	Sum of Square	Df	Mean Squares	F	Sig
Base[b]	Regression	5.125E-02	8	6.407E-03	9.804	.000[b]
	Residual	3.333E-02	51	6.535E-04		
	Total	8.458E-02	59			
Concentric	Regression	7.864E-03	8	9.830E-04	2.776	.045[c]
	Residual	4.958E-03	14	3.541E-04		
	Total	1.282E-02	22			
NonConcentric[d]	Regression	4.745E-02	8	5.932E-03	7.396	.000[d]
	Residual	2.246E-02	28	8.020E-04		
	Total	6.991E-02				

a. Predictors: (Constant), Manufacturing Change, Professional Services Change, Services Change, Transportation Change, Governmental Change, Less than High School Change, College Graduate Change, Index of Discrimination Change
b. Dependent Variable: Poverty Change, 1970-1990
c. Dependent Variable: Concentric Poverty Change, 1970-1990
d. Dependent Variable: NonConcentric Poverty Change, 1970-1990

Table B.50 Poverty Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	99% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	1970 Poverty – 1990 Poverty	1.387E-03	3.786E-02	4.888E-03	-1.1624E-02	1.440E-02	.284	59	.778

APPENDIX C

COPYRIGHT RELEASES

SAGE PUBLICATIONS, INC.
CORWIN PRESS, INC.
PINE FORGE PRESS

REPRINT PERMISSION AGREEMENT/INVOICE

2455 TELLER RD., THOUSAND OAKS, CA 91320
OFFICE: (805) 499 -0721 EXT. 7716 FAX: (805) 375 1718
E-MAIL: PERMISSIONS@SAGEPUB.COM
FEDERAL TAX ID#95-2454902

Effective Date: August 18, 2000

SAGE REFERENCE #: SRN 081800 0010/
(This number must appear on all correspondence and payment of fees.)
EMAIL: BILLY.GODAIR@SCOTT.AF.MIL PHONE #: 618-229-3914 FAX #:
RE :

Mr. Bill W. Godair
Old Dominion University
310 Whitehall Drive
O'Fallon, Illinois 62269
United States

One-time only, non-exclusive, world rights in English are hereby granted to Mr. Bill W. Godair (hereafter referred to as "The Requester") for the following selection:

BOOK/JOURNAL TITLE:	ANNALS OF THE AMERICAN ACADEMY OF POLITICAL & SOCIAL SCIENCE (ANN)
AUTHOR/EDITOR:	
VOLUME/ISSUE #	/ 1989
TITLE OF SELECTION:	Urban Industrial Transition and the Underclass
TYPE OF EXCERPT:	table & figure EXCERPT: Table 1 (page 29)
MAXIMUM PRINT RUN:	200
AMOUNT DUE:	*PER COPY: $0/table & figure
	*FLAT FEE: $0 *(If Per Copy & Flat Fee=$0, NO FEE.)

Permission is hereby granted under the following terms and conditions:

1. The number of copies must not exceed the copies as stated in the request, nor the Maximum Print Run stated on this agreement. If the Maximum Print Run is "unspecified," the number of copies hereby defaults to under 100 copies for institutional use, and 3,500 copies for commercial use. If requester requests 100 or more copies and the actual copies made drops below 100, the charge is $1 per copy
2. Permission is granted for non-electronic print format only. Use of selections in electronic media such as, but not limited to the Internet, Intranet, or CD-ROM is prohibited. However, permission is granted for transcription via non-standard size audio tape for use with the blind or visually impaired.
3. If the selection is to be reprinted for commercial use, two (2) copies must be submitted to Sage Publications, Inc., upon publication of the work. Use of selections in "course packs" for use in an educational setting are exempt from this clause.
4. The permission does not apply to any interior material not controlled by Sage Publications, Inc.
5. *Unless otherwise noted in your request*, the Flat Fee is based on a maximum print run of 3,500 copies. If the print run exceeds 3,500 copies, this agreement is automatically rescinded, and the request must be re-submitted, stating the correct print run.
6. If the selection is intended for use in a Master's Thesis and Doctoral Dissertation, additional permission is granted for the selection to be included in the printing of said scholarly work as part of UMI's "Books on Demand" program.
7. Full acknowledgment of your source must appear in every copy of your work as follows:
   Author(s), Book/Journal Title (Journal Volume Number and Issue Number)
   pp. xx-xx, copyright (c) 19xx by (Copyright Holder)
   Reprinted by Permission of (Publisher - either Sage Publications or Corwin Press), Inc.
8. Unless specified in the request or by prior arrangement with Sage Publications, Inc., payment is due from the Requester within sixty (60) days of the effective date of the agreement or upon publication of the book/journal, otherwise the agreement will automatically be rescinded without further notice.
9. Payment is to be made by Check or Money Order only, with the complete Sage Reference Number listed on the check or check stub. **We do not accept Purchase Orders or Credit Cards, nor do we create separate invoices.**
10. It is assumed that the requester is using the selection in question, and is subject to billing and collections procedures, unless otherwise noted in the signature on the right hand side of this agreement, or the requester informs Sage Publications, Inc. in writing.

Your signature below constitutes full acceptance of the terms and conditions of the agreement herein.

Billy W. Godair
Signature of Requester

28 Aug 00
Date

Your signature below constitutes your rejection of the terms and conditions of the agreement herein.

Signature of Requester

Date:

PLEASE REMIT ONE (1) SIGNED COPY OF THE AGREEMENT, ALONG WITH ANY APPLICABLE PAYMENT TO THE ADDRESS LISTED ABOVE. THANK YOU.

An Activity of the W.E. Upjohn Unemployment Trustee Corporation

W.E. UPJOHN INSTITUTE for Employment Research Established 1945
300 South Westnedge Avenue • Kalamazoo, Michigan 49007-4686
Telephone (616) 343-5541 FAX (616) 343-3308

August 22, 2000

Bill W. Godair
310 Whitehall Drive
O'Fallon, Illinois 62269

Dear Mr. Godair:

In response to your request, the W.E. Upjohn Institute grants you permission to reproduce, in your dissertation, Table 1 from page 45 of the book *Poverty and Inequality: The Political Economy of Redistribution*, edited by Jon Neill. This permission is granted free of charge and without limit on the number of copies of your dissertation that you make. No other use of this table is granted by this letter.

We are glad that you found one of our books useful in your work. If you have other questions about our books, please call me at 616-385-0460 (direct line) or write to me at nadziejka@we.upjohninst.org.

Yours,

David E. Nadziejka

David E. Nadziejka
Editorial Manager

Godair Billy W SMSgt AMC/XPM

From: brian@rsage.org
Sent: Wednesday, August 09, 2000 9:15 AM
To: billy.godair@scott.af.mil
Subject: Obtaining Permission to use Copyrighted Material

Mr. Godair,
Please let this e-mail serve as formal approval to use the copyrighted material listed below in your dissertation. You may use the material at no charge. However, should your dissertation be published in commerical form, you would be required to reapply for permission, and you would be charged a fee at that time. For your information, the final table you requested, from Kasarda, is not published by the Russell Sage Foundation, and we cannot grant copyright for that. Sage Publications are not affiliated with us.
Please let me know if you have any questions.
Brian Roach
Permissions Manager

>X-Sender: info@192.103.8.10
>X-Mailer: Windows Eudora Light Version 3.0.1 (32)
>Date: Wed, 09 Aug 2000 09:32:08 -0400
>To: brian@rsage.org
>From: info@rsage.org (info)
>Subject: Obtaining Permission to use Copyrighted Material
>
>>Return-Path: <billy.godair@scott.af.mil>
>>From: "Godair Billy W. SMSgt AMC/XPM" <billy.godair@scott.af.mil>
>>To: "'info@rsage.org'" <info@rsage.org>
>>Subject: Obtaining Permission to use Copyrighted Material
>>Date: Mon, 7 Aug 2000 14:08:41 -0500
>>Return-Receipt-To: "Godair Billy W. SMSgt AMC/XPM"
>> <billy.godair@scott.af.mil>
>>
>>My name is Bill W. Godair. I am currently working on my dissertation with
>>Old Dominion University in Norfolk, VA.
>>
>>I would like to obtain information on how to include copyrighted material in
>>my dissertation. Specifically, I would like to include
>>
>>Table 5.10, page 244 - 245, from Kasarda, John D. 1995. "Industrial
>>Restructuring and the Changing Location of Jobs." Pages 215 - 267, In State
>>of the Union: American in the 1990s, Volume One: Economic Trends. edited by
>>Reynolds Farley. Russel Sage Foundation. New York.
>>
>>Table 5.13, pages 251 - 252, from Kasarda, John D. 1995. "Industrial
>>Restructuring and the Changing Location of Jobs." Pages 215 - 267, In State
>>of the Union: American in the 1990s, Volume One: Economic Trends. edited by
>>Reynolds Farley. Russel Sage Foundation. New York.
>>
>>Table 1, page 29, from Kasarda, John D. 1989. "Urban Industrial Transition
>>and the Underclass," pages 26 - 47. In The Annals of the American Academy
>>of Political and Social Sciences. edited by Richard d. Lambert. Sage
>>Publication: Newbury.
>>
>>I may be contacted either a home (phone: 618-624-7139, e-mail
>>billgodair@aol.com) or at work (phone: 618-229-3914, e-mail
>>billy.godair@scott.af.mil). My mailing address is 310 Whitehall Drive,
>>O'Fallon, IL 62269.
>>
>>Very Respectfully,
>>Bill W. Godair
>>
>>
>>
>>
>